DEC 3 1948 D

DECEMBER, 1948

THE Refrigeration INDUSTRY

AIR CONDITIONING EQUIPMENT

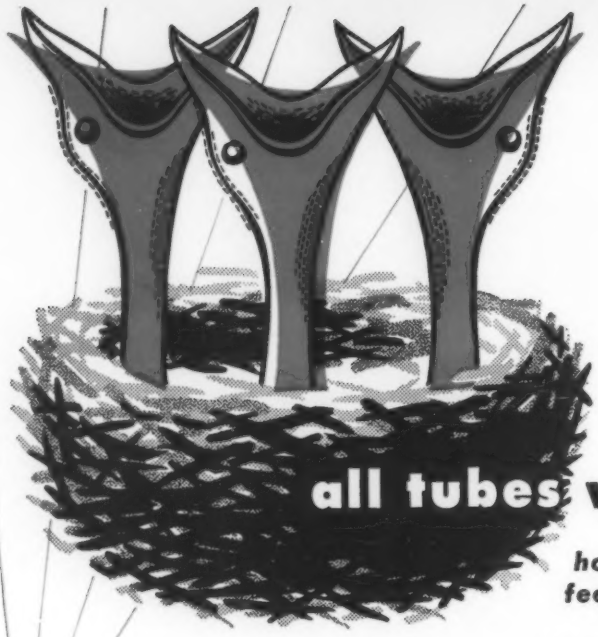
MERCHANDISING ★ INSTALLATION ★ MAINTENANCE

Man of the Month . . .

TURN TO PAGE 40

EINER G. HANSEN
President
Hansen Refrigeration, Inc.
Flint, Mich.

DON'T MISS: "JUST ASK FOR 'POP'" . . . the sixth in a series of "personality portraits" of men who have built successful businesses in the refrigeration field



all tubes wide open!

how will you feed 'em equally?

A valve with separate distributor permits a single coil circuit to "flood through" to the valve's thermal bulb. The bulb and valve respond, throttling all other coil circuits. This "starves" much of the evaporator surface, often cutting capacity as much as 1/3.

Alco Multi-Outlet Thermo Valves prevent "short-circuiting" or poor distribution. In thousands of installations they have increased capacity 1/4 to 1/3 by feeding circuits equally.

- *Refrigerant is accurately metered at point of expansion* ***within valve body,*** *before separation of gas and liquid*
- *All circuits are equally fed regardless of load changes*
- *Positive, stable control—no "hunting" or "cycling"*

Result: less running time—lower operating costs. Available at your wholesalers for all refrigerants and applications: 1/2 to 50 tons FREON-12, 2 to 36 outlets. Ask for our Bulletin 180.

ALCO
MULTI-OUTLET THERMO VALVES

Designers and Manufacturers of Thermostatic Expansion Valves; Evaporator Pressure Regulators; Solenoid Valves; Float Valves; Float Switches.

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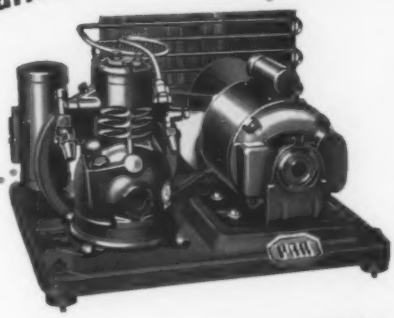
3456

PAR

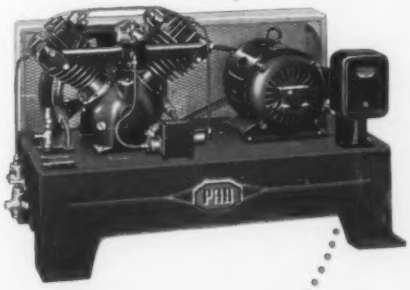
The popular **17**

. . . 17 popular models ranging from small, compact 1/6 h.p. units for domestic and commercial self-contained applications . . .



The wide range of models and sizes of Par Condensing Units affords a proper type, proper size unit to permit "tailored installations" for maximum economy and maximum efficiency on each individual application. See your Par Wholesaler for a complete list of Par Units now available or write for illustrated Catalog R-99 for specifications and capacities.

to **rugged, heavy duty 5 h.p. water-cooled units for commercial applications.**



Par-Condensing Unit Line sold exclusively through Franchised Refrigeration Equipment Wholesalers!

By Comparison — You'll Buy **PAR** .....

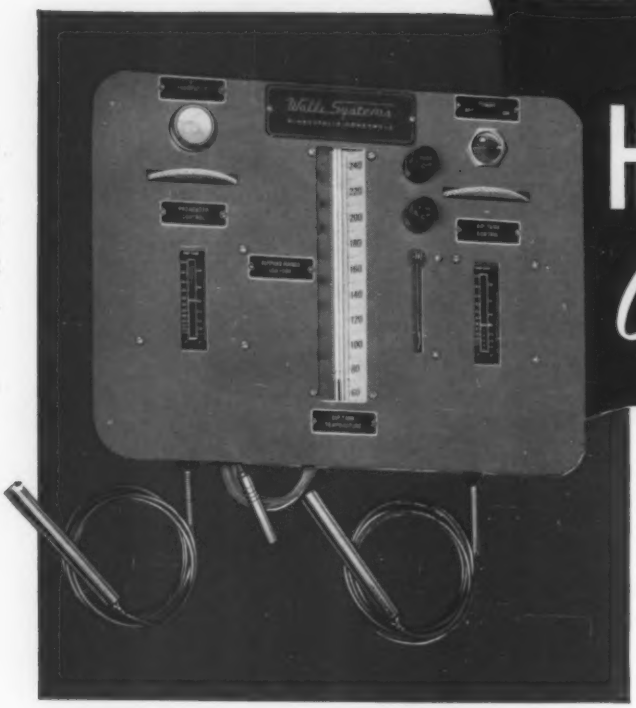
LYNCH CORPORATION

Par Compressor Division TOLEDO 1. OHIO U. S. A.

Simplify YOUR REFRIGERATION INSTALLATIONS

WITH

HONEYWELL *Control* PANELS



Shown in the photograph is one example of Honeywell refrigeration control panels. Two T415 temperature controllers and a remote bulb thermometer have been combined in a single compact, quickly installed unit.

IF you're concerned over finding new methods to cut costs and step up production, you'll profit by investigating refrigeration control panels—a development of Minneapolis-Honeywell, the 60 year leader in automatic control.

Refrigeration control panels are designed and made by Honeywell to meet your own individual requirements. The panels simply group all controls for any one of your products into one compact, workable unit. The advantages are many. Inventory items are reduced from several to just one. Materials handling is cut the same way. Production goes up as the number of control installations goes down—to just one. And time and again, among manufacturers already using Honeywell control panels, the net result has been the same—lower costs and increased production with greater operating efficiency.

The range of applications is broad. Temperature controllers, pressure controllers, thermometers, switches, motor starters, signal lights—all these and others can be combined on Honeywell control panels. Write today for information related to your own specific needs. Address Control Panel Division, Minneapolis-Honeywell, Minneapolis 8, Minnesota. In Canada: Toronto 12, Ontario.

MINNEAPOLIS
Honeywell
CONTROL SYSTEMS

DECEMBER, 1948

VOLUME 5, NO. 12

THIS MAGAZINE has no official affiliation with ANY group, society or association.

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THE COVER . . . "Pop" Hansen, our December "Man of the Month", is shown here in one of his most familiar roles—that of teacher, counselor, and "Father Confessor" for younger and less experienced men in the refrigeration industry. Turn to page 40 to learn more about this friendly fellow who has helped many a budding refrigeration man over some of the rough spots.

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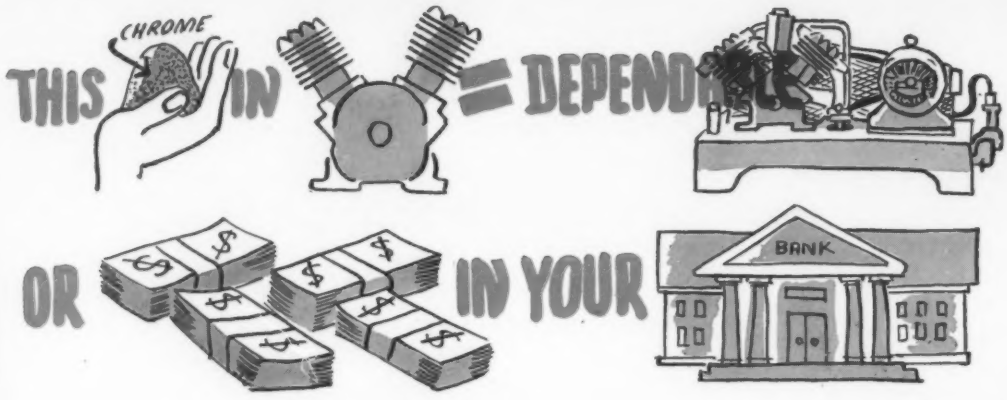
BRUNNER
SINCE 1906

REFRIGERATION helps you serve better

Memo to Equipment Installers

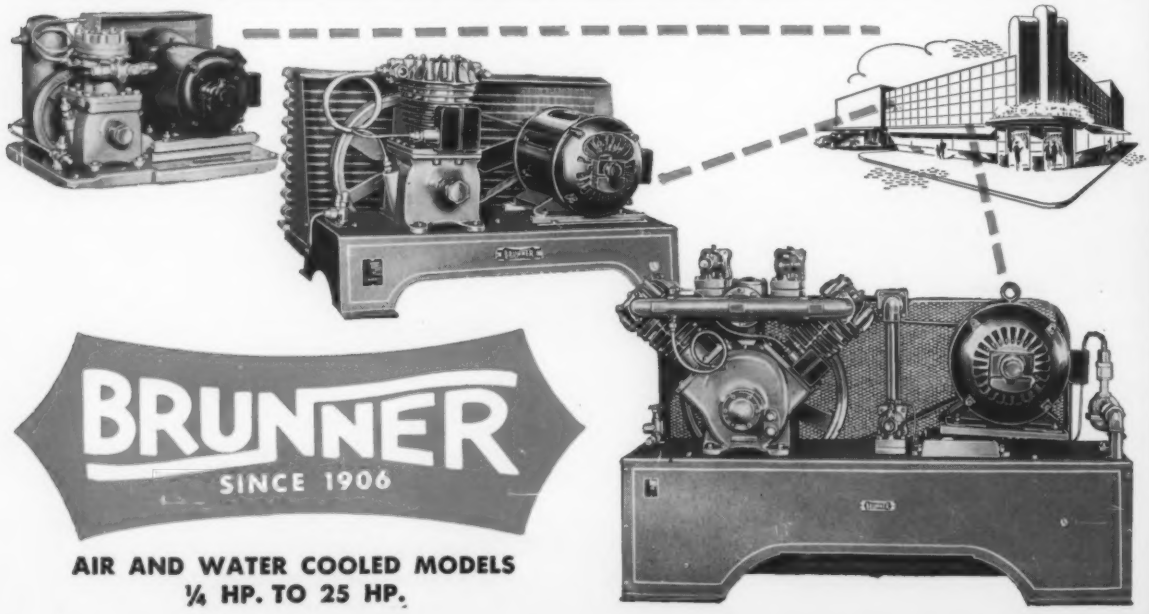


That handful of chrome in the compressor casting can well be the starting point of more profits from sales and more complete customer satisfaction. This and many other technical reasons why Brunner condensing units have become "most wanted" will make interesting listening and your business more profitable. Spend a little time with a Brunner factory representative* who talks your language —knows your sales and service problems.

The recognized quality of Brunner units has forced greatly expanded manufacturing facilities—new buildings—more assembly lines—latest developments in precision machinery. It makes good sense to "check up" and have the advantages of Brunner acceptance by your trade.

*Write us. When would you like to have him stop in?

BRUNNER MANUFACTURING CO.
UTICA 1, NEW YORK, U. S. A.



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SINCE 1906

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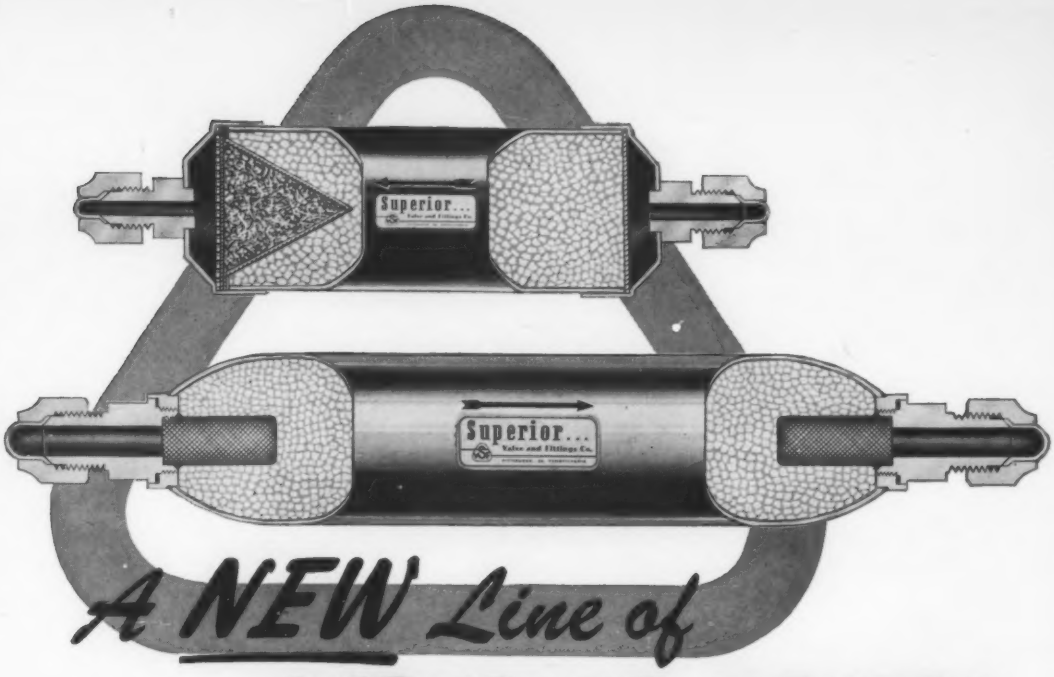
¼ HP. TO 25 HP.



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The DRIERS with the *Plus Features*

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- ★ ALL BRASS CONSTRUCTION

For complete details and specifications on the New Driers and other Superior products, ask your Wholesaler for a copy of our NEW Catalog R3.

(or a copy may be obtained by writing to us)

159

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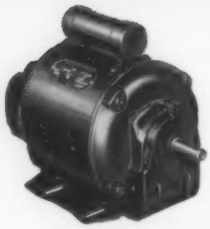
OFFICES IN PRINCIPAL CITIES · STOCKS CHICAGO (6) · LOS ANGELES (15) · JOBBERS EVERYWHERE

the Wagner Fractional Horsepower Motor

If you manufacture, install, or service compressors, stokers, deep freeze units, pumps, or any of a hundred different motor-driven appliances—you have a special interest in dependable fractional horsepower motors.

Wagner Fractional Horsepower Motors are the first choice of many manufacturers of small machines and appliances. Millions of these small-sized, low-priced motors have been in use for years, giving troublefree performance and building customer satisfaction. Take a tip from these manufacturers and reduce service calls due to motor failure by choosing Wagner Motors. More than fifty-five years of motor building experience stands behind every motor bearing the Wagner name.

Twenty-nine branch offices, located in principal cities, are ready to assist you, without obligation, whenever you have a motor problem. Write for Bulletin MU-185 for information on the complete line of Wagner Quality Motors.



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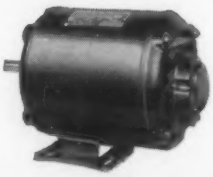

Many types and sizes of Wagner Fractional Horsepower Motors are now available from stock.

Wagner Electric Corporation

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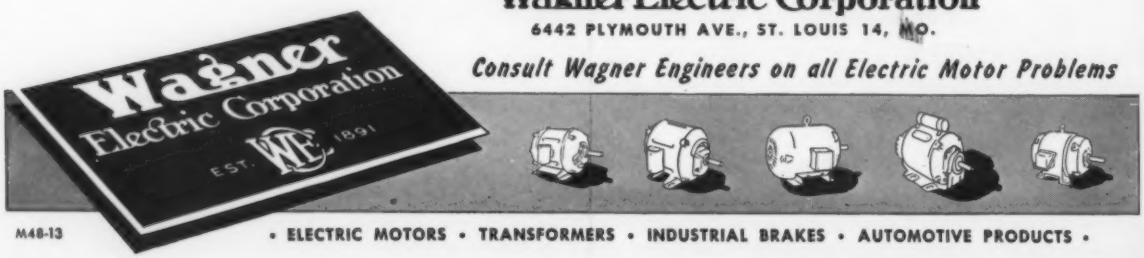
Consult Wagner Engineers on all Electric Motor Problems



M48-13

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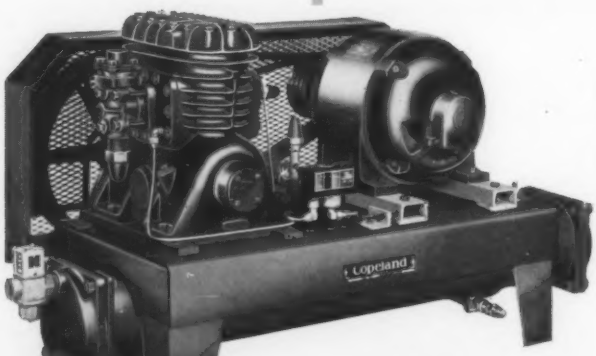
Copeland quality control

These add up to easier sales . . . for you !



Especially since Copeland follows through with consistent advertising and merchandising helps. Copeland makes every prospect a potential sale by maintaining the most complete and flexible line in the industry.

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Manufacturers of: Refrigeration Units, (Open-type and Copelametic), Water Coolers, Refrigerators.

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Behind McCray Koldflo is the engineering "know how" that has made possible every modern improvement in commercial refrigeration.

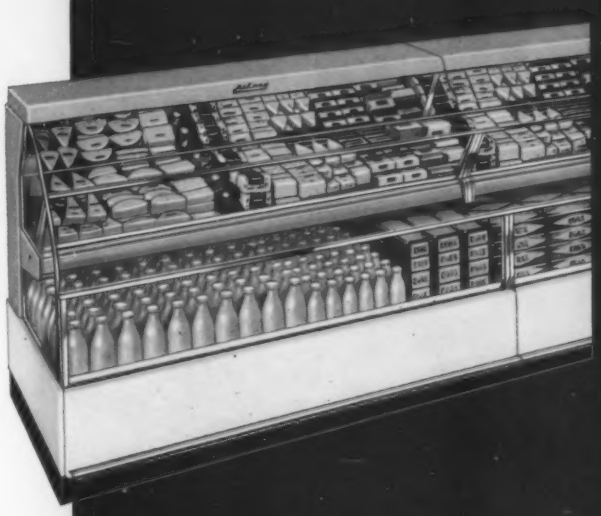
Only the highest quality features are found in the McCray line. The McCray Koldflo system is built for low-cost operation, ease of installation and servicing, and utmost convenience. All Reach-Ins come self-contained. Remote installations are available where required in service and self-service Display Cases.

Back of every McCray product is a 58-year-old reputation for industry leadership ...consistent national advertising supported by sales promotion and merchandising plans.

The ready acceptance of all McCray Koldflo units makes it the line most preferred by dealers everywhere. WRITE TODAY! You'll want to be armed with the complete McCray Koldflo story that your customers are reading about in their own trade publications.

THE BEST IN LOW-COST REFRIGERATION

McCray
KOLDFLO



McCray's newest Multiple-Deck, Self-Service Dairy Display Case—6-foot size gives 30% more refrigerated display area than standard 10-foot display case.

McCray's newest Double-Duty, Self-Service, Continuous Display Case—10' sections that link together . . . engineered to cut store overhead costs.

McCray Refrigerator Company, Box A, 996 McCray Court, Kendallville, Indiana.

Please send me information on the complete line of McCray Koldflo commercial refrigeration equipment.

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RALSTON and JONES Complete Refrigeration Service and Maintenance	
OK	Motor
OK	Head Pressure
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OK	Fan Belts
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?	HARDWARE ✓
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OK	Controls

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FREE . . .
Ask Your JOBBER

This manual makes it easy to sell and install replacement hardware. Full directions and detail drawings. If your jobber can't supply, write direct and give us his name.

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Automatically
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without
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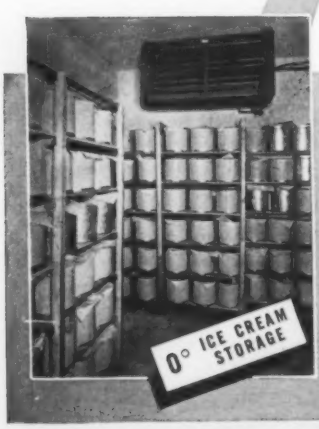
- BRINE OR WATER SPRAYS

Write for Bulletin R-124

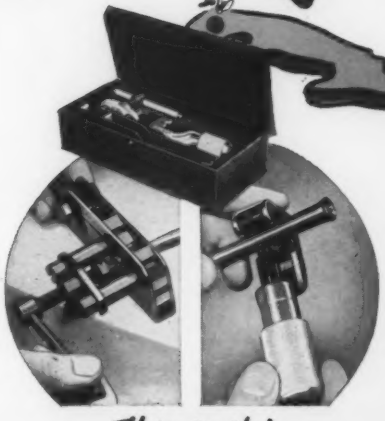


KRAMER TRENTON CO. *Trenton, N. J.*

THE WORD'S AROUND ONLY ONE TUBING IS "SUPERIOR"

PENN makes a habit of showing up in all of the important spots around the country. Check 'Superior's' high quality chart and you will find why standardizing on 'Superior' tubing becomes habit-forming with top executives and smart service men. Get it straight or get it coiled, 1" O. D. to capillary .093" O. D.—'Superior' offers a host of distinct advantages. 'Superior' specifications are: Super dry, clean and bright, easy bending, and seamless. The word's around—keep Penn tubing around. Get the facts from Penn—write for full specifications, information and colorful literature.

TUBING HAS TO BE GOOD TO BE "SUPERIOR"



This is it!

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The new, modern, metal package protects Papco flaring equipment. For the best cutting and flaring tools, get Papco. Buy the kit or buy either tool, but always buy Papco. Order yours today.

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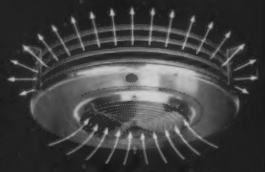
ONE OF THE BIG THREE OF 1948

Two-way Dome Cooler with air flow limited to two directions.

The new, improved 1948 model of the Peerless Dome Cooler, the cooler that went to war and made a record for distinguished service! Here, with beautiful spun aluminum casing and the new Peerless Coil, is the proud successor to the 20,000 Dome Coolers that cooled the food for all U. S. Army Cantonments from the start of World War II. In the Dome Cooler, air from the refrigerator is drawn up in the center of the unit and discharged horizontally along fixture ceiling to drop down the side walls. The Dome Cooler is the ideal unit for maintaining high humidities in reach-in and walk-in coolers. Its installation is a simple operation, it occupies minimum space, and it is engineered for correct functioning and long life. Complete with built-in heat exchanger and suction spinner.



Standard Dome Cooler with air emitting in all directions.

Model No.	List Price	Capacities B.T.U. per Hour at Given T.D. Between Air and Refrigerant			Motor and Fan Characteristics				Overall Dimensions Including Motor			Connections				
		1°	10°	20°	Motor H.P.	R.P.M.	Fan Size	C.F.M. Capacity	Height	Width	Depth	Liquid	Suction	Valve Inlet	Valve Outlet	Drain
67	$71.11	65	650	1300	1/70	1400	8	220	5 5/8	18½	18½	¼	½	⅜	½	½
97	81.61	95	950	1900	1/70	1400	8	240	5 5/8	20⅝	20⅝	¼	½	⅜	½	½
127	106.83	125	1250	2500	1/70	1400	10	360	5 5/8	22⅝	22⅝	¼	½	⅜	½	½
227	132.78	225	2250	4500	1/30	1000	12	560	10 3/16	27⅞	27⅞	¼	½	⅜	½	½
327	167.61	325	3250	6500	1/30	1000	12	520	10 3/16	27⅞	27⅞	¼	½	⅜	½	½
457	245.83	450	4500	9000	1/15	1000	16	1050	10 5/16	31⅞	31⅞	¼	⅝	⅜	½	½
607	293.39	600	6000	12000	1/15	1000	16	1000	10 5/16	34⅞	34⅞	¼	⅝	⅜	½	⅝
907	344.72	900	9000	18000	1/15	1000	20	1800	10 7/16	43⅞	43⅞	⅜	¾	⅜	½	⅝
1257	394.83	1250	12500	25000	1/15	1000	20	1700	12 7/16	43⅞	43⅞	⅜	¾	⅜	½	⅝

ENGINEERING DATA ABOVE

FOR BOX TEMPERATURES ABOVE 32°
FOR USE WITH FREON, METHYL CHLORIDE AND SULPHUR AS REFRIGERANT.

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World's Finest **TOOLS**

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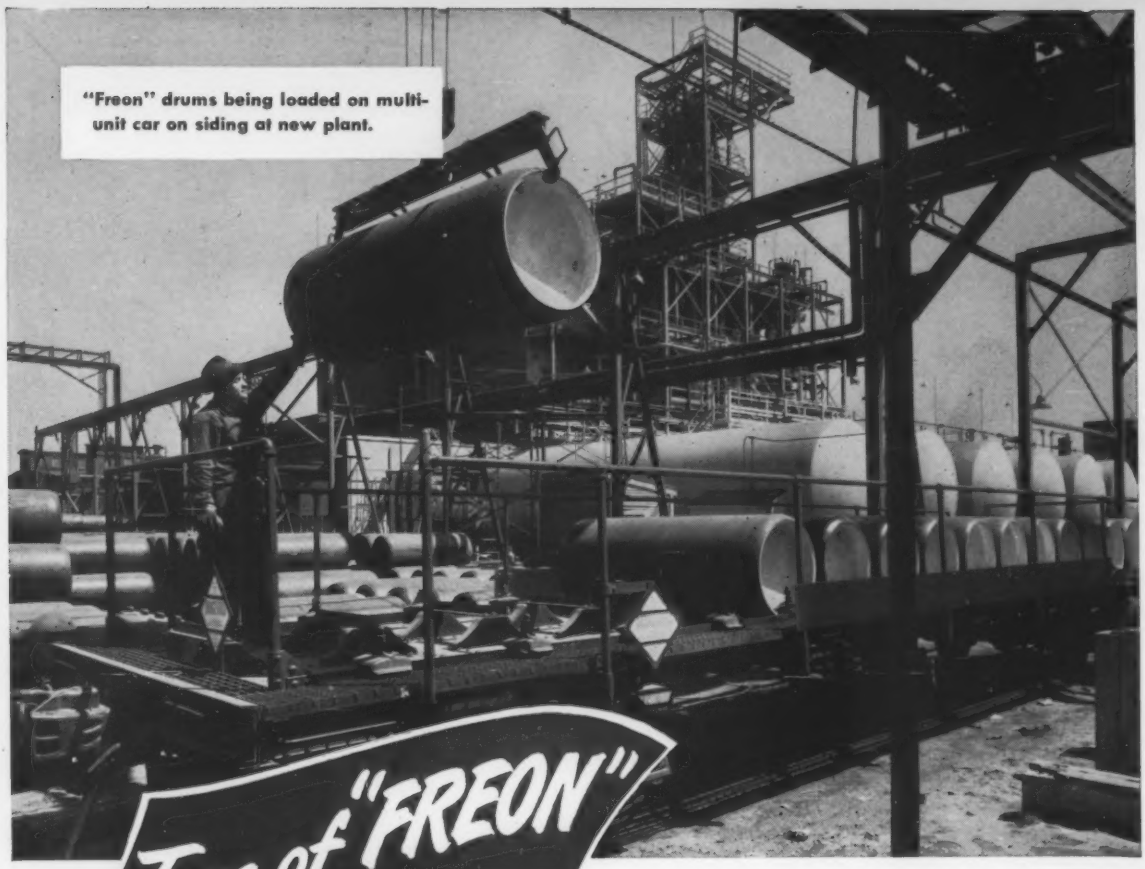
NIBCO

FITTINGS AND VALVES

NORTHERN INDIANA BRASS CO.; 1214 PLUM STREET, ELKHART, INDIANA



"Freon" drums being loaded on multi-unit car on siding at new plant.

Tons of "FREON"

New Kinetic Plant steps up Production

TODAY there is no shortage of "Freon." Actual production obtained shows that the new "Freon" plant at East Chicago, Indiana, will increase the supply by approximately sixty per cent. No reason —now—for individual stock-piling. No reason for not returning "Freon" cylinders promptly. Empty cylinders will always be needed to help ship that production and meet current demands for "Freon" now available.

Shipments continue at peak levels. That is because manufacturers of air conditioning and refrigerating units, as well as insecticidal aerosols, are using more "Freon" than ever before. They recognize that "Freon" refrigerants and propellents are safe . . . nontoxic, nonflammable, and nonexplosive . . . ideal for every type of commercial, industrial or household requirement.

The quality and uniform purity of these refrigerants (they are also practically anhydrous: less than 10 parts of moisture per million parts of "Freon"!) contribute to the satisfactory performance and the long life of modern, compact, space-saving refrigeration machines.

Smart purchasers today check carefully to determine whether the equipment they are buying is designed to utilize "Freon" safe refrigerants. It is a good way to safeguard their investments. Kinetic Chemicals, Inc., Tenth and Market Streets, Wilmington 98, Delaware.

KINETIC

FREON

REG. U. S. PAT. OFF.

safe refrigerants

"FREON" IS KINETIC'S REGISTERED TRADE MARK FOR ITS FLUORINATED HYDROCARBON REFRIGERANTS AND PROPELLENTS

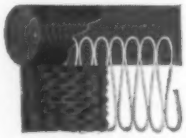
Bridgeport
INNER-SEAL
WEATHER STRIPPING

HELPS BANANAS KEEP COOL ON UNITED FRUIT SHIPS . . .

Maintenance of a constant optimum temperature is vital for the safe transport of highly perishable bananas and other tropical fruits. That's why Inner-seal weatherstripping was specified in the special plans drawn for a new class of all-refrigerated ships by the United Fruit Company. On the hatch plugs of the new SS Metapan, shown below, Inner-seal, with its resilient sponge rubber bead, provides an airtight, crevice-filling seal against torrid, equatorial heat. Refrigeration equipment doesn't have to work overtime to compensate for costly leaks that dissipate the cool air circulated through cargo spaces. In addition, the Inner-seal used on these ships has a neoprene coating that resists the ravages of sunlight, extreme temperature variations and salt water, thus assuring longer, more effective service under the toughest marine conditions.

Perhaps your problem isn't keeping bananas cool and calm, but if it involves keeping heat or cold, dirt or dampness in or out, you ought to have the facts on Inner-seal. Write today for data sheet giving complete information.

The SS Metapan, one of nine new all-refrigerated ships added to the Great White Fleet. In addition to cargo she can carry 12 passengers in first-class accommodations.



Tough spring steel wire moulded for life in live sponge rubber, providing unequaled flexibility for fitting sharp corners and compound curves.

Bridgeport
FABRICS, INC.
BRIDGEPORT 1, CONN.
Est. 1837

LETTERS

Need a Sales Tool For Packaged Cooling?

THE REFRIGERATION INDUSTRY:

We are the Chrysler Airtemp distributors and as you can appreciate, we read your article "No Sweat Shop Here" in the August issue with avid interest.

As you probably have heard, Dallas is a garment and hat manufacturing center. There are only one or two central station air conditioning installations here. We believe that if our prospects could read your article we could stimulate a great amount of interest in "packaged" installations.

Could you furnish us with 100 reprints of the article to be used in connection with our air conditioning surveys now under way? Of course, we will be happy to defray any expense involved.—D. L. Echols,, Matthews Engineering Co., Dallas, Tex.

We are happy to hear of your interest in the article in our August issue entitled "No Sweat Shop Here!", and we sincerely hope that the reprints of it, which you request, will be of some assistance to you in selling similar air conditioning installations to some of your local garment manufacturers.—Editor

Effect of Expansion Valve Questioned by Reader

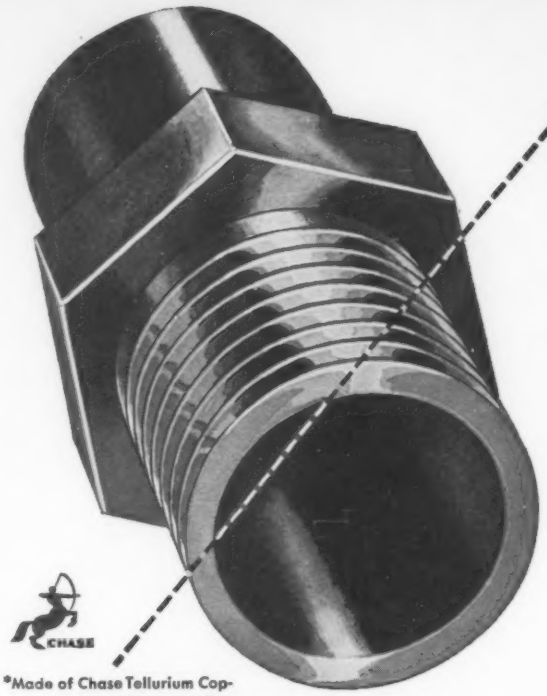
THE REFRIGERATION INDUSTRY:

A problem has come up so I am writing to you people to settle an argument for us.

The problem is as follows. An automatic expansion valve is put on a refrigeration system which is using Freon 12 for refrigerant. The automatic expansion valve is adjusted to operate on a 10 pound suction pressure. If the unit was left to run for 24 hours or more with no cold control to shut it on or off, would the evaporator temperature be about zero degrees or would the evaporator temperature drop to around --21 F?

Is it also true that an automatic expansion valve has no control over the evaporator temperature?—Roland E. Till, Box 873, Paso Robles, Calif.

The purpose of an automatic expansion valve is to maintain a constant refrigerant pressure in the low-side. If a valve were set at a 10 pound suction pressure and the machine were permitted to run continuously, the temperature in the evaporator would eventually approach approximately –2 F, and if the valve were operating properly, the temperature would never be reduced below this



CHASE *COPPER SOLDER-JOINT FITTING ADAPTERS

Have SO_2 THREADS!

*Made of Chase Tellurium Copper, a patented copper alloy of remarkable machinability that takes clean-cut threads. U. S. Pat. No. 2,027,807.

WITH SO_2 threads in sizes through 1" nominal, Chase Copper Tube Adapters are made of Tellurium Copper and designed for greater strength and resistance to deformation caused by wrench stresses. Tellurium Copper is a special copper alloy developed by Chase that possesses excellent machinability and gives Chase adapters the uniform threads that mean tighter, leakproof joints.

Remember, also, that Chase Copper Refrigerator Tube is *extra soft* for easier handling, and for faster installations. And that Chase Wrought Copper Fittings are sound and non-porous and made *to fit* the tube accurately!

For better installations call your Chase Distributor today and ask for Chase Copper Refrigerator Tube and Wrought Copper Solder-Joint Fittings.

Chase Copper Refrigerator Tube and Fittings give you

TIGHTER JOINTS! EXTRA STRENGTH!

To find out more about Chase Copper Refrigerator Tube and Solder-Joint Fittings send for literature to Dept. R1128.

Chase

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THIS IS THE CHASE NETWORK . . . *handiest way to buy brass*

ALBANY† ATLANTA BALTIMORE BOSTON CHICAGO CINCINNATI CLEVELAND DETROIT HOUSTON† INDIANAPOLIS KANSAS CITY, MO. LOS ANGELES MILWAUKEE MINNEAPOLIS NEWARK NEW ORLEANS NEW YORK PHILADELPHIA PITTSBURGH PROVIDENCE ROCHESTER† SAN FRANCISCO SEATTLE ST. LOUIS WATERBURY (†Indicates Sales Office Only)

AVOID fire hazards and protect your investment too. Build your locker plant of fireproof materials—*including insulation!* Gold Bond Zerocel Insulation is as fireproof as the rock from which it's made. It simply can't burn! And it has all the other qualities you need and expect in top grade insulation.

Leading builders and operators of locker storage plants specify Zerocel for three important reasons: perfect insulation performance, fire protection, and economy. A special booklet with detailed drawings showing the best method of installing Zerocel will gladly be sent upon request.

- Efficient, "K" factor of 0.24 BTU at 60°F.
- Fireproof
- Will not absorb moisture
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- Will not settle
- Immune to fungus, rot and decay
- Easy to cut with a knife

GOLD BOND ZEROCEL INSULATION

SEND FOR FREE BOOKLET TODAY

National Gypsum Company, Buffalo 2, N. Y.

Gentlemen: Please send me a FREE copy of the new Gold Bond Zerocel Booklet, "Fireproof Refrigeration Construction." I-12

Name .....

Company .....

Street .....

City ..... State .....

LETTERS

point. After the valve heat in the evaporator was absorbed, the suction line outside of the refrigerated enclosure would begin to frost, and eventually it would be possible to frost clear back to, and including, the compressor.

The purpose of the thermostat in connection with an evaporator employing an automatic expansion valve is to see that compressor operation stops before any frost-back condition occurs.

In regard to your inquiry as to whether or not an automatic expansion valve has no control over the evaporator temperature, the answer to that is that an automatic expansion valve definitely fixes the minimum temperature at which an evaporator can operate.—Editor

Seeks Information on Ice Skating Rinks

THE REFRIGERATION INDUSTRY:

Please send me all information on ice skating rinks. Worthington had an ad in a few months back.—Frederick Rafferty, Rafferty Refrigeration, Paterson, N. J.

Condensing units that can be used for this purpose are manufactured by a number of companies, including: Worthington Pump & Machinery Corp., Harrison, N. J.; Carrier Corp., Syracuse, N. Y.; Frick Co., Waynesboro, Pa.; York Corp., York, Pa.; Baker Ice Machine Co. Inc., South Windham, Me.

These companies may have this data on the installation of ice skating rinks, or perhaps be able to suggest to you the name of a refrigeration contractor who has installed a number of ice skating rinks and can be of assistance to you.

One company that specializes in the construction of ice skating rinks is M. R. Carpenter Co., Cleveland, Ohio. This company has a number of patents covering the construction of ice skating rinks, and if you will write to Mrs. E. R. Carpenter, you can get further information on this subject.—Editor

BUY FROM YOUR REFRIGERATION WHOLESALER

LETTERS

Another Dealer Looks For Coin Meters

THE REFRIGERATION INDUSTRY:

Can you advise us where we can get a coin-operative time switch. This information will be appreciated.—H. H. Howze, Farm & Home Appliance Co., Brownfield, Tex.

In reply to your inquiry of October 1, concerning manufacturers of coin meter devices such as you desire are currently being produced by the following companies: International Register Co., 2620 West Washington Blvd., Chicago 12, Ill.; Miller Harris Instrument Co., 836 N. 4th St., Milwaukee 3, Wisc.—Editor

Locker Data Sought

THE REFRIGERATION INDUSTRY:

I would like to have some information on frozen foods and locker plants.—Allan W. Gillis, Aberdeen, Md.

In reply to your recent request for information on cold storage locker plants, we suggest that you get in touch with the Frozen Food Locker Institute, Inc., 656 Insurance Bldg., Omaha 2, Neb.

This organization is comprised of companies who specialize in equipment for locker storage plants.—Editor

Portable Refrigerator Attracts Attention

THE REFRIGERATION INDUSTRY:

Within recent months, under the heading of *New Products* I read about a portable refrigerator which could be used in the home on any current or could be attached to one's car. This item was and is of great interest to myself and I had every intention of contacting the manufacturing concern shortly after the bulk of the summer business had passed. Unfortunately, my copy of THE REFRIGERATION INDUSTRY containing that item has been mislaid.

I would appreciate it greatly if you could forward me the name of the manufacturer. As I recall it this organization was located in Lansing, Michigan.

I might add at this time that your magazine is a splendid source of information and aid in adding lines. Thank you for a very good job.—B. H. Kanter, Ben-Flo Co., Chicago, Ill.

This unit is manufactured by Kold-Pak Inc., 3179 Cedar Road, Lansing, Mich.—Editor

Genuine Joe says "Don't be Slow..."

Keep small motors moving out *fast!* Stock Wagner Motor Armatures"

It's easy to repair small motors when you have a supply of Wagner *Ready-To-Use* Armatures on hand. Three simple steps... and the job is done.

1. **Remove old armature.**
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3. **Test the motor and ship it out.**

Keep genuine Wagner Motor Armatures in stock, and release your winders for more profitable work on the larger sized jobs.

Order them today

from any of the 450 Authorized Service Stations or Parts Distributors displaying these signs.

***Write for* CATALOG MU-40**

Every repair shop needs one. It helps determine the catalog number and price of Wagner Motor Parts.

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ELECTRICAL AND AUTOMOTIVE PRODUCTS

MUELLER BRASS CO.
Ful-Flo
REFRIGERATION FITTINGS

No Restriction in Flow Capacity

Mueller Brass Co. refrigeration fittings conform in every respect to S. A. E. standards with the exception of the bore. THE BORE IS MACHINED TO PERMIT A FULL FLOW EQUAL TO THE INSIDE DIAMETER OF THE TUBING USED, AND CONSEQUENTLY IS LARGER IN INTERNAL AREA THAN S. A. E. FITTINGS.

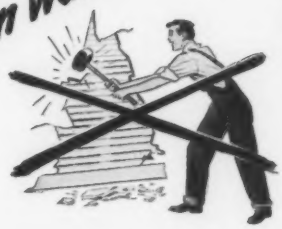
All fittings are accurately machined and of the highest quality materials. All flare outlets are finished to the closest desirable tolerances.

Particular attention is given to the accurate machining of flared seats; they must be absolutely flat, smooth and concentric with the bore. All male flare threads are protected by heavy sleeves to prevent damage in shipping or handling.

FORGED Years of experience have conclusively shown that forged brass nuts and fittings are vitally essential in mechanical refrigeration and air conditioning because they require a dense metal structure that can best be obtained through forging.

STREAMLINE
PIPE AND FITTINGS DIVISION
MUELLER BRASS CO.
PORT HURON, MICHIGAN

DON'T knock down walls



DON'T waste time with small parts

DO SAVE INSTALLATION TIME...and CUT COSTS

...with G-E Central Plant Air Conditioners

ALL sections of the new General Electric Central Plant Air Conditioners can pass easily through a standard 30″ door . . . the two smallest models completely assembled. This compactness allows a wide choice of location for the unit. It means time and money saved in installation, too.

28 different arrangements

Both vertical and horizontal models are designed on the building block principle—12 different vertical arrangments—16 horizontal arrangements. They cover a cooling range from .8 to 58 tons . . . and a heating range from 28,100 to 1,310,000 Btu's per hour.

All units are pre-fabricated, pre-engineered and pre-matched to assure fast assembly if shipped in sections. The welded sheet-steel construction is rigid, light in weight, making it easy to handle, inexpensive to ship.

For a smoother, quicker, less expensive air conditioning job, get full information from your local G-E air conditioning representative today. Or fill in coupon below.

GENERAL ELECTRIC

Better Air Conditioning

General Electric Co.
Air Conditioning Dept., Sect. A81412
Bloomfield, N. J.

Gentlemen: Please send me your new booklet on the new G-E Central Plant Air Conditioners.

Name.....

Address.....

City.....State.....

From an insulated body . . .

to a 45°-50° refrigerated truck

As simple as 1-2-3

*Name on request

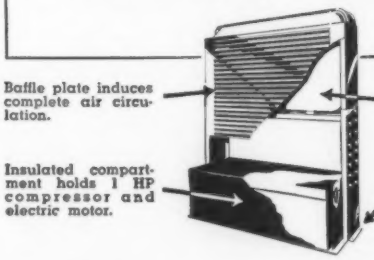
with KOLD-HOLD'S new *Pakage* truck unit

Hi-temperature refrigeration of perishables is achieved quickly, easily and economically through the installation of the new "Pakage" truck unit. This unit is a completely self-contained refrigeration system which you can install (see right) in from two to three hours without special body work, holders or brackets. It works well in any properly insulated body, regardless of age . . . and it maintains a 45° to 50° temperature throughout the longest day's deliveries. The unit recharges itself by simply plugging in to any 110V outlet. 220V motor is available if desired. Write for the "Pakage" truck unit bulletin for information.

1. Cut two holes in the floor of the truck for air intake and discharge. Dimensions and measurements come with the unit, as well as complete installation instructions.

2. Push the unit into position over the holes and bolt securely into place. This is all the installation required.

3. Plug into 110V outlet. Twenty foot rubber covered cord is supplied with the unit. If desired, a connection box may be installed outside the body for greater convenience.


Baffle plate induces complete air circulation.
Insulated compartment holds 1 HP compressor and electric motor.
Two Kold-Hold "Hold-Over" Plates have 25,800 B.T.U. capacity.
Strong steel angles drilled for bolting to the truck floor.

KOLD-HOLD

Jobbers in Principal Cities

PROCESSING TRANSPORTATION STORAGE

protects every step of the way

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HITCH YOUR FUTURE TO THESE STARS!

INVESTIGATE OUR STARTLING NEW KEY DEALER PLAN

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OF SPECIALTY REFRIGERATION PRODUCTS

BEV-COOL
A bottle cooler that can be operated either wet or dry.

BEV-FOOD
The only combination beverage and food cooler—can be operated wet or dry.

BEV-ETTE
The PERSONAL REFRIGERATOR designed especially for executive and professional offices. Notionally advertised in leading magazines; Esquire, New Yorker, Town & Country, Business Week, Sunset, Sales Management and Geyer's Topics.

BEV-GIANT
A mammoth bottle cooler that can be operated wet or dry.

FARM GIANT
Utility food refrigerator, produce holder and milk cooler. 16 cu. ft. Cools 20 gal. milk. Moist cold refrigeration.

SEND COUPON TODAY FOR FULL DETAILS ON OUR KEY DEALER PLAN

REGIONAL MEN — ATTENTION!
Good regional men write today for details on remaining open territory.

★★★★★ Artkraft* is producing this fine line of SPECIALTY REFRIGERATION at "MOST CUBIC FEET PER DOLLAR" low prices, backed by an aggressive national advertising campaign in over 20 magazines, to net you BIG PROFITS!

THIS COUPON FOR YOUR CONVENIENCE

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( ) ☐ Please send full details on Artkraft* Key Dealer Plan.

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Firm.....
Street.....
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MANUFACTURING CORPORATION
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SIGNS OF LONG LIFE*

QUALITY PRODUCTS FOR OVER A QUARTER CENTURY

*Trademark Reg. U.S. Pat. Off.

"Detroit" Thermostatic Expansion Valves

offer EXCEPTIONAL RELIABILITY AND LONG LIFE

Year after year "Detroit" Thermostatic Expansion Valves stay on the job—give reliable, trouble-free service—rarely require servicing or replacement.

Here is a veteran which shows what "Detroit" expansion valves can do. This No. 663 Thermostatic Expansion Valve controlled refrigeration in an apartment house for 17 years before system changes brought about its retirement.

During that time, it gave no trouble—required no attention whatever. It is in operating condition today.

Veteran Valve Serves 17 Years

This "Detroit" No. 663 Bellows Type Thermostatic Expansion Valve served 17 years without trouble in an apartment refrigeration plant. It is in operating condition today.

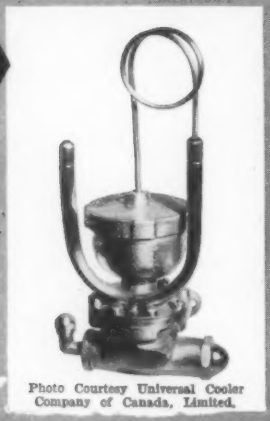
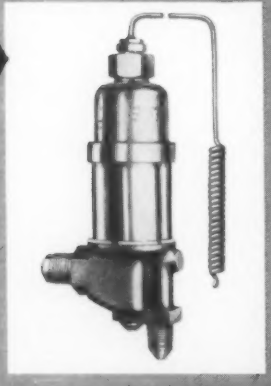


Photo Courtesy Universal Cooler Company of Canada, Limited.

No. 673—Another Record Maker

"Detroit" No. 673, the modern counterpart of No. 663. It has made, and is making, records of reliability on countless installations.



No. 673

The Modern Counterpart

"Detroit" No. 673 Thermostatic Expansion Valve is the modern counterpart of this veteran. It has the same built-in durability and reliability. In countless installations, it is making valve history. Among Thermostatic Expansion Valves, it is "the standard of the industry." "Detroit" Gas-Charged Thermostatic Expansion Valves provide better control—longer, trouble-free service.

5172

DETROIT LUBRICATOR COMPANY

DIVISION OF AMERICAN RADIATOR & Standard Sanitary CORPORATION

General Offices: 5900 TRUMBULL AVENUE, DETROIT 8, MICHIGAN

Canadian Representatives — RAILWAY AND ENGINEERING SPECIALTIES LIMITED, MONTREAL, TORONTO, WINNIPEG

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"DETROIT" HEATING AND REFRIGERATION CONTROLS • ENGINE SAFETY CONTROLS • FLOAT VALVES AND OIL BURNER ACCESSORIES "DETROIT" EXPANSION VALVES AND REFRIGERATION ACCESSORIES • STATIONARY AND LOCOMOTIVE LUBRICATORS

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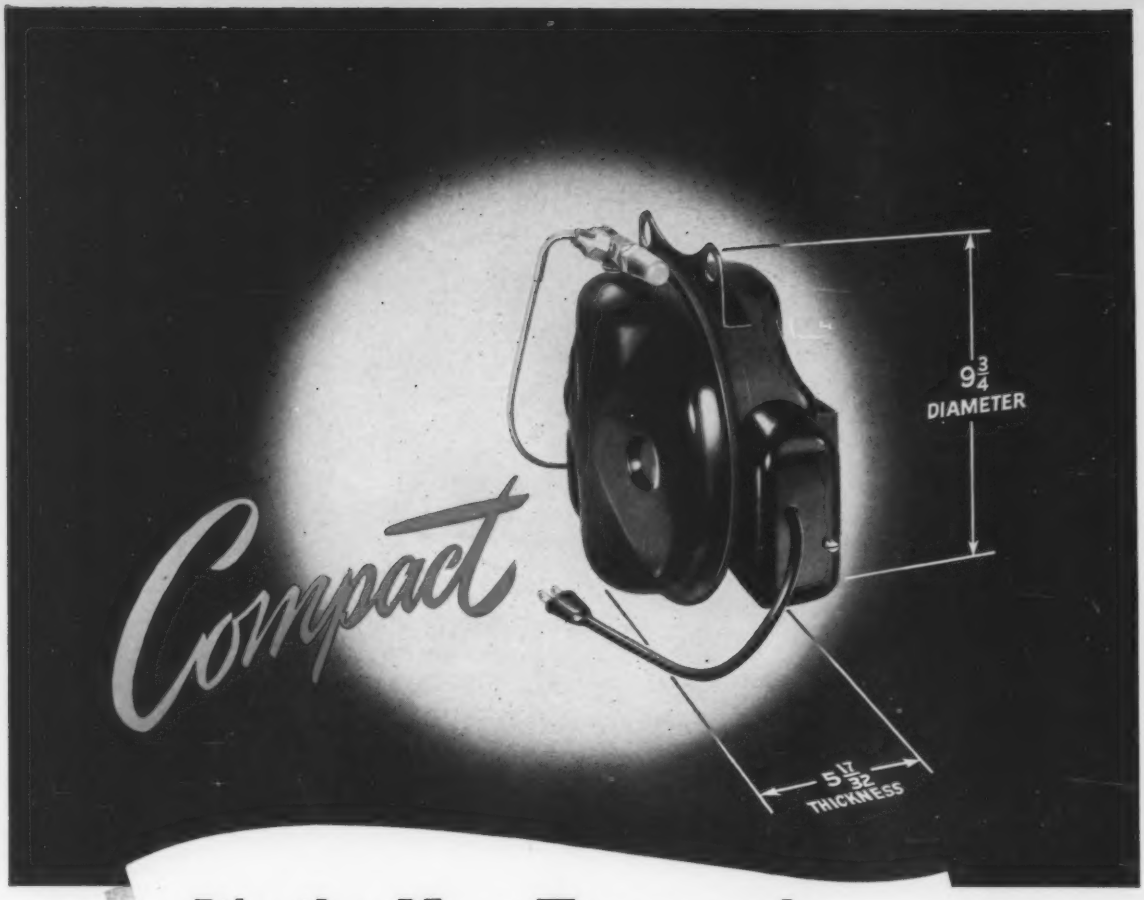
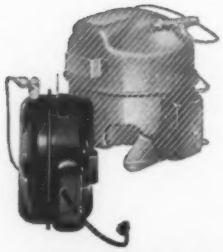


It's the New Tecumseh Hermetic Motor Compressor



COMPACT! Just 9¾" in diameter by 5 17/32" thick! Compare its size to other Hermetics and you'll see why this new Tecumseh unit is a "natural" for your "limited space" applications.

Take a good look at this new Tecumseh single cylinder, 1/10th horsepower Hermetic. Check its over-all dimensions, its amazing new compactness of design. Consider its internal spring mountings that assure smooth, quiet, vibrationless operation. Then add positive forced feed lubrication, ample provisions for oil cooling, plus all the other outstanding engineering features that characterize the millions of Tecumseh units already in service. These are reasons enough, we believe you'll agree, why this latest Tecumseh Hermetic has been acclaimed a major contribution to the refrigeration industry.

Adaptable to apartment, midget and regular domestic refrigerators, water coolers, small beverage coolers and vendors, biological cabinets, and many other applications where limited space is a controlling factor.

TECUMSEH PRODUCTS COMPANY
Tecumseh, Michigan

Chieftain

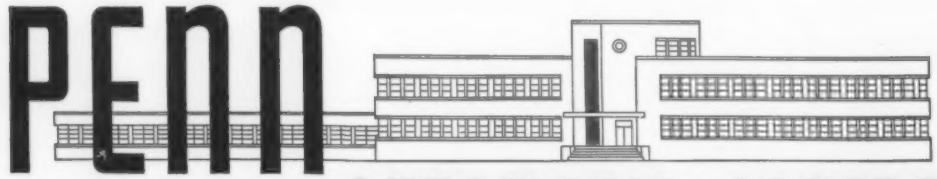
WORLD'S LARGEST INDEPENDENT PRODUCER OF COMPRESSORS AND CONDENSING UNITS FOR THE REFRIGERATION INDUSTRY.

Just Glance at this Direct-Reading Scale on the Penn 270 Series Control

No addition . . . No subtraction . . . you set the "cut-in" and "cut-out" points directly with this simple "sight-set" calibrated scale. Never before has it been so easy to make required adjustments. Never before has an air conditioning and refrigeration control embodied so many plus values as are offered by the PENN 270 Series.

For the first time here is a control with a load-carrying, 2 pole construction—actually two switches in one. Examine the Penn 270 and you'll see it has an extra sturdy contact mechanism to give *dependable* electrical performance. Its terminals are molded right into the block assembly for strength and permanence. Its calibration and accuracy are not affected by vibration. And you pay no premium for all of these plus features found only in Penn Refrigeration Controls.

No wonder the PENN 270 is the talk of the industry. For versatility of applications, for simplicity, efficiency and dependability this control sets a new high standard. Write now for the complete story in Bulletin 2652. **Penn Electric Switch Co., Goshen, Indiana.** Export Division: 13 E. 40th Street, New York 16, U. S. A. In Canada: Penn Controls, Ltd., Toronto, Ontario.



AUTOMATIC CONTROLS

FOR HEATING, REFRIGERATION, AIR CONDITIONING, ENGINES, PUMPS AND AIR COMPRESSORS

An editorial on Americanism

LET'S BE SELFISH

Regardless of what your politics are, you will probably join with the rest of America and agree that Mr. Dewey's surprise defeat was due to overconfidence. His advisors, the polls of public opinion, the newspapers, and all the rest of the experts gave Mr. Dewey the election before he won it. He was lulled into complacence by these false prophets and lost the presidency. He took too much for granted.

As a people, we take too much for granted the blessings of our country. It should scare the pants off us when Communists can take into their camp a man who should be one of our nation's leaders, or when Communists can actually place their members in high governmental places, or when Communists can get some of our government officials to carry on their nefarious work for them. It is time for us to wake up and look around.

It is time that we become suspicious of organizations with high-sounding patriotic names. We are so childish we think that any organization with a fine name really means to live up to it. Let's be suspicious. Let's be selfish. Let's not be taken in by honeyed words.

What do these people offer us? Freedom. We have more freedom than their beloved Russia ever knew about in its whole history. They know only the police state.

They don't even begin to understand our kind of freedom, which arises from the dignity of the individual. They don't understand the kind of freedom which permits a man to work where he pleases and quit that place if he pleases. They don't understand what it means for us to be able to say and do anything that pops into our heads, singly or collectively. They don't understand what it is to be able to worship as we choose, to live where and as we want, to go and come as we want with no interference from the State.

They want to give US freedom? Bunk. We could give them plenty of ours and still have some left over.

What else do these people offer us? Democracy. It's sand in your eyes. They don't know what Democracy is. They know the police state. They know the one-party ballot. Vote their way—or off comes your head. They never saw a Mr. Truman and Mr. Dewey run for our highest office, have only a couple of million votes separate them, and then see this country unite behind the winner to make America function just as though their very own candidate had won.

They don't understand this. They say we are weak and decadent. They don't know that our strength comes from our people. Their strength comes from a government centered in the hands of a few. Ours comes from the 150 millions of people who ARE America.

These are things we must treat selfishly. Let's not lose our birthrights. Let's keep these things. Let's not allow anyone to take them away. Let's guard them as we would our most valuable possessions, because that's what they are.

Let's be selfish. Without these rights to freedom, our families, our work, our money, our jobs, our houses, and all our possessions amount to nothing. With them, we Americans are the blessed people of the earth.

Irving B. Hexter

Kenneth Morris, head of Morris Refrigeration Sales, Manitowoc, Wis., takes this effective way of extending his holiday greetings to all his customers. This frosty sign in the show window of the Morris establishment is formed of 64 feet of ¼-inch copper tubing connected to a refrigeration compressor. This month we should like to join Mr. Morris in sending to people everywhere and especially to our advertisers, our wholesalers, our readers, and our friends—the very best of . . .

Season's Greetings!

LOW TEMPERATURE TRAINING

Refrigeration students in this St. Louis trade school prepare themselves for participation in the rapidly expanding field of low temperature work by building and operating a special piece of equipment for low temperature experimentation

RECOGNIZING the trend in refrigeration toward the use of lower temperatures, the David Ranken, Jr., School of Mechanical Trades in St. Louis, Mo., has realized the necessity for educating skilled technicians in this field.

Under the direction of John P. Kibler, head of the refrigeration department, the school has constructed a somewhat unusual piece of equipment for this specific purpose. This set-up, designed for experimentation with two and three-stage compression and the use of such low temperature refrigerants as F-22, is proving itself to be a very effective training medium.

The evaporator of this unit consists of 100 feet of ⅝-inch tubing wound in a cylinder of 1½-cu. ft. capacity. The cabinet is insulated with 12 inches of cork on all sides.

Two Kelvinator model "R" 1½-hp condensing units and one Frigidaire model "K" 1/3-hp unit are used. These machines were completely reconditioned by Ranken students.

The two Kelvinator units are used for first and second stage compression, with an oil separator after each stage which acts as a preventive measure against oil waxing conditions at the expansion valve. The first stage compressor operates at 742 rpm and the second stage compressor at 514 rpm, both using 300 viscosity oil. The Frigidaire unit is used for subcooling the liquid refrigerant through the medium of a heat interchanger before entering the expansion valve.

These old SO_2 compressors were

Two old Kelvinator 1½-hp units and one 1/3-hp Frigidaire unit were utilized in the construction of this experimental low temperature system in the David Ranken, Jr., School of Mechanical Trades. All three machines were completely reconditioned by students prior to their installation in this unique training setup.

Sell Packaged Cooling NOW!

A. F. Ward
Director of Packaged Cooling Sales
Airtemp Div., Chrysler Corp.

AN active fall and winter campaign for packaged air conditioner sales and installations can be a most profitable operation for you.

Usually the size of your sales, application, installation and service departments is such that you have a more or less fixed maximum of business you can handle during the late spring and summer of any year. If you increase your organization to handle additional business during this period, it means that you have excessive overhead during the fall and winter months unless you relieve your organization of trained personnel.

A fall and winter sales campaign is the least expensive way to make an important increase in your annual volume because it is an additional volume of business that you would not normally be able to secure and handle during your peak season. It is the way to increase your volume and profit without increasing your overhead.

Aggressive fall and winter sales effort can add as much as 40% to your annual volume. Actually the sales and installations you make during the fall and winter offer a greater percentage of net profit to you than those made during your peak season.

Installations made during the peak season often tax your normal facilities beyond your ability to handle the work most economically. You pay more overtime. Your installations are not as clean—you have more call backs to complete installation details—and all these things eat heavily into your profit.

Fall and winter installation not only increases your annual volume an important amount, but it increases your total volume without increasing fixed charges. This is the dream and aim of all successful businesses—to increase volume without increasing overhead. That's when a business really starts to pay off.

But that's only part of the story. You know how difficult it has been for you to secure and train good installation men. You know that you've invested real money in these men to bring them up to your high standard. You know you want to keep them for next year's rush. If you keep them on the pay roll with little or no work to do, that overhead will eat up a lot of last summer's profit. If you let them go this fall and winter in order to reduce overhead, then you've lost experienced trained men in whom you have made an important investment in education—and you'll have the job to do all over again next year.

Fall and winter packaged air conditioning sales and installations is the obvious answer. You'll keep your men busy—they'll be making a profit for you instead of being a millstone hanging around your neck in the form of overhead—and you'll have them ready and available for your rush season next year.

selected because of the long piston stroke, and the resultant benefits gained due to the extreme low back pressures at which the machines operate. The two Kelvinator units are charged with Freon 22, and the Frigidaire unit on the sub-cooler with Freon 12.

The refrigerant motoring devices are a Detroit No. 793 differential temperature expansion valve for the evaporator, and a Detroit No. 672 A.E.V. on the heat interchanger. This interchanger is a 12-foot length of $\frac{5}{8}$-inch copper tubing with a $\frac{3}{8}$-inch liquid line wound inside.

Valves Are Precooled

The valves and the counterflow subcooling interchanger are housed in a small cabinet on the end of the main cabinet. This valve compartment is maintained at approximately –10 F to precool the operating valves and hold temperature drop losses to a minimum.

The liquid refrigerant is precooled to approximately –65 F by the subcooling interchanger before entering the temperature differential expansion valve. It is possible to drop the temperature 150 degrees from room temperature within the first 20 minutes of operation. The lowest temperature that has been reached with this machine is –150 F.

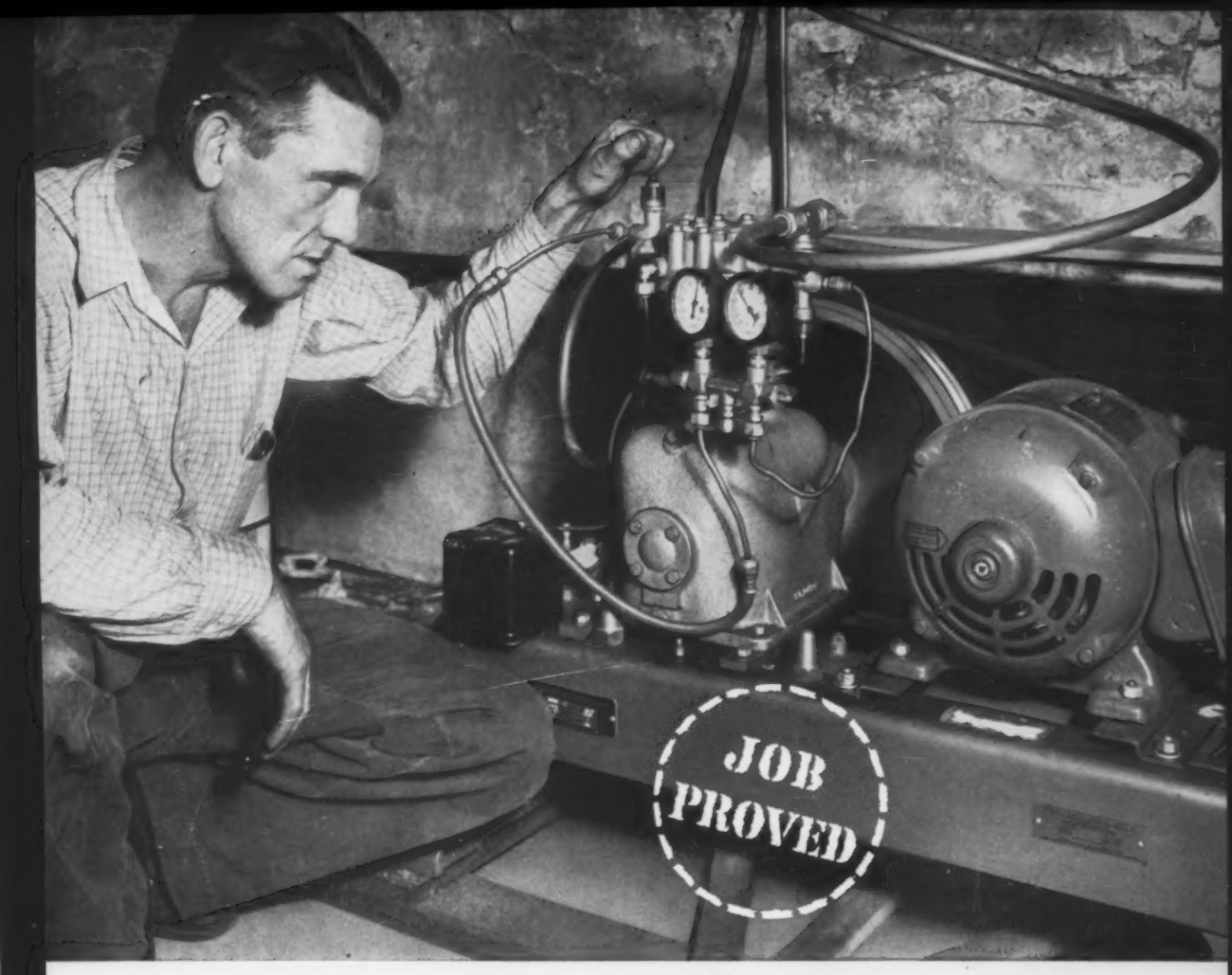
Controls Provide Flexibility

The electrical control system has been designed in such a way that it is possible to operate each unit separately, or to cycle as a complete unit.

The value of this piece of equipment in the training program is obvious. Each student who goes through the advanced work operates and analyzes the unit.

He must learn the value of the refrigerants, the compression ratio, and how to calculate the compressor capacity. He must figure his compressor speeds on the various stages, subcooling values, and temperature pressure drops. He must also study the electrical controls and their operation, temperature pressure relationships and, of course, the insulation factors.

This equipment has been built entirely by students, under the guidance of H. C. Heumann and W. W. Absher, instructors in the advanced refrigeration shop.



EASING A FREEZING PROBLEM

Suniso Keeps Compressor in 100% Troublefree Service after Competitive Refrigeration Oil Fails in a Few Days

An ice cream parlor opened for business with a brand-new refrigerating unit. The machine was located in a poorly ventilated basement, where summer temperatures run in the high 90's. In a few days it heated up; next it ran spasmodically; then, in less than two weeks, it quit running altogether—right at the start of the busy season.

The compressor was taken down and found to be heavily gummed with sludge and carbon on walls and valves. The oil had proved unequal to the job. The unit was cleaned with the aid of kerosene and chemicals. It was then charged with a "Job Proved" Suniso Refrigeration Oil. No trouble of any kind has been encountered since. None due to the lubricant need be expected—judging from the record of Suniso in the service of others.

From ice cream parlor to office building, the demand for Suniso is outstanding in the world of refrigeration and air-conditioning. Suniso Oils are the predominant choice of manufacturers of all types of equipment in this field.

Suniso Oils come in several grades, each with extremely low pour-point and low wax-separation point. They have exceptional dielectric strength and high resistance to chemical change when mixed with Freon or any other modern refrigerant. For your copy of the 52-page illustrated bulletin "Lubrication of Refrigeration and Air-Conditioning Equipment," write Department RI-12.

SUN OIL COMPANY · *Philadelphia 3, Pa.*
In Canada: Sun Oil Company, Ltd.
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SUN PETROLEUM PRODUCTS
"JOB PROVED" IN EVERY INDUSTRY

SUNOCO

THE *Terra Therm* HEAT

By Robert C. Webber
1st Vice President
Webber Engineering Corp.

A report on the heat pump system being produced by Webber Engineering Corp., Indianapolis, Ind.

PRODUCTION STATUS—
More than 20 units now undergoing extensive field testing, with production facilities tentatively set up to manufacture 10 units per week.

AVAILABILITY—
Through Webber Appliance Co. in Indianapolis area, and directly through factory elsewhere.

HEAT SOURCE—
Refrigerant coil buried in the ground.

PRICE RANGE—
3-hp unit $1750 and 5-hp unit $2200, plus approximately $300 to $500 for installation.

THE name "Terra Therm" aptly describes the heat pump unit now being manufactured by Webber Engineering Corp., Indianapolis, Ind., for this unit uses the virtually unvarying temperature of the subsurface earth as its source of heat.

From a coil of copper tubing buried in the earth this unit draws the heat which it needs to heat a home or a business establishment in the winter months. Through this same buried coil it dissipates the heat which it draws from that structure during the cooling cycle.

The mechanical part of this unit consists of a 5-hp motor and refrigeration compressor and a ¼-hp motor driven blower, together with the necessary controls, condenser, and valves to make the system entirely automatic in operation. All of this equipment is housed in an attractive metal cabinet measuring 72¾ inches high, 42 inches wide, and 26 inches deep. The entire assembly weighs 1090 pounds. A 3-hp model also is available.

All electrical apparatus in the system operates on 230 volt, 60 cycle, a.c. current. The compressor motor operates at 1800 rpm and the blower motor at 1725 rpm. The latter is equipped with a variable speed pulley to permit adjustment of blower speed.

All parts of the unit are accessible from the front of the cabinet to facilitate service. All controls are mounted in a special box which is provided with an access door on one side of the cabinet. The thermostat operates on low voltage from a transformer mounted in this control box. The unit is equipped with overload and undervoltage protection devices built into the magnetic motor starter. The compressor is equipped with both high and low pressure cutouts.

Operating data for both heating and cooling cycles which has been developed as the result of continued tests on the system follows:

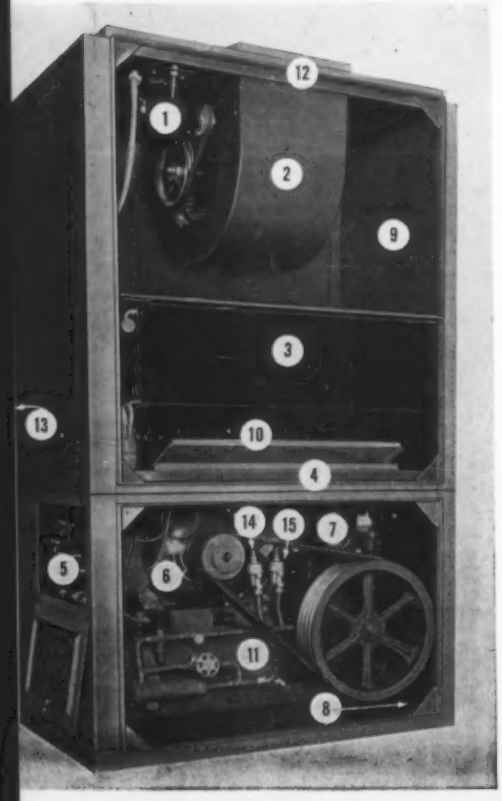


FIG. 1

1 ¼-hp blower motor on adjustable mounting for regulating tension.
2 Blower.
3 Heavy duty coil in special angle mounting for efficient operation on both heating and cooling cycles.
4 Drain pan for catching moisture removed from air during cooling operation.
5 Compact electrical box with all controls easily accessible for service. Automatic safety controls operate in the event of mechanical difficulties. Large manual reset button and switch protrude through box cover.
6 5-hp motor.
7 Multi-cylinder compressor.
8 Entire assembly rests on massive rubber mountings to eliminate noise and vibration.
9 Cabinet interior treated with sound-absorbing material.
10 Oversized air filters.
11 Large receiver tank.
12 Air supply duct.
13 Air return duct.
14 Control valve for heating.
15 Control valve for cooling.

PUMP

Heat output (heating) 70,000 Btu per hour, (cooling) 43,000 Btu per hour; average supply air temperature (heating) 112 F, (cooling) 55 F; average return air temperature (heating) 70 F, (cooling) 75 F; air volume (heating) 1550 cfm, (cooling) 2000 cfm; running current for compressor motor (heating) 28 amps, (cooling) 27 amps; running current for complete unit (heating) 31 amps, (cooling) 30 amps; average head pressure (heating) 175 psi, (cooling) 155 psi; average suction pressure (heating) 18 psi, (cooling) 28 psi; coefficient of performance (based on total kw input and Btu output of unit), 3.2.

The real secret of the Terra Therm unit's operation is the special system which is employed for removing the heat from the earth. About 1000 feet of the special ground coil which performs this function is buried below the freezing line of the earth in the area where the installation is made. Special plans for each installation are provided by the engineering department of Webber Engineering Corp.

The ground coil is composed of several circuits. Where a large area of ground is available, these circuits are laid out in one depth level. Where less space is available, these coil circuits are buried one beneath another on two or three separate levels. Once installed, this ground coil never needs attention again. The only action that ever takes place in this coil is the circulation of a refrigerant through it.

The Terra Therm heat pump offers all of the familiar advantages generally ascribed to all heat pump systems. It provides year around air conditioning with completely automatic control. It eliminates the use of any kind of combustible fuel, thereby providing increased cleanliness in the home and eliminating the need for a flue or chimney, and reducing the fire hazard. Its compactness provides much more usable space

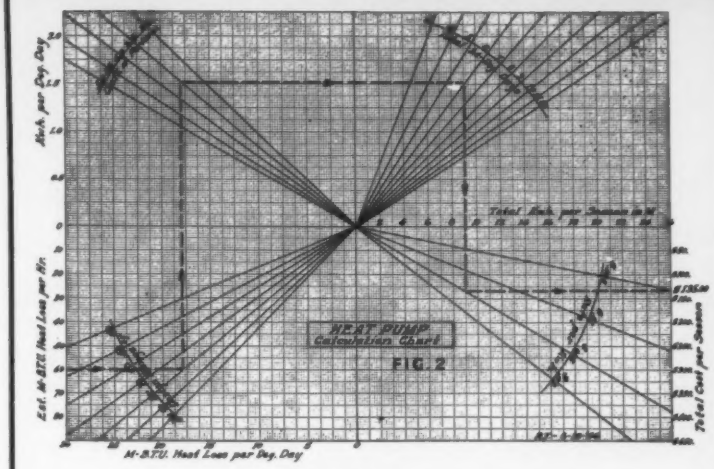


FIG. 2

TABLE I

Method of estimating approximate heat loss per hour in residential buildings.

Design Range Maximum Temp. Difference in Degrees	Btu Required per Hour per Cu.Ft.		
	Thoroughly Insulated House	Moderately Insulated House	Standard Construction House
100	4.5	6.25	8.75
90	4.0	5.6	7.9
80	3.5	5.0	7.0
70	3.0	4.4	6.1
60	2.6	3.75	5.25
50	2.2	3.1	4.4
40	1.75	2.5	3.5
30	1.3	1.9	2.6

1. Thoroughly insulated house has storm doors and windows, insulated ceilings and side walls.
2. Moderately insulated house has storm doors and windows and ceiling insulation.
3. Standard construction has no special insulation of any kind.

Example:—With a moderately insulated house, a design range of 80 degrees and total volume of house 12,000 cu.ft., we find that the Btu per cu.ft. heat loss per hour is 5. Then multiplying 12,000 by 5, we get 60,000 as the total heat loss per hour at 80 degrees temperature differential. Then use the Heat Pump calculation chart to get data needed.

Note:—A more accurate heat loss figure may be determined by using the ASHVE method.

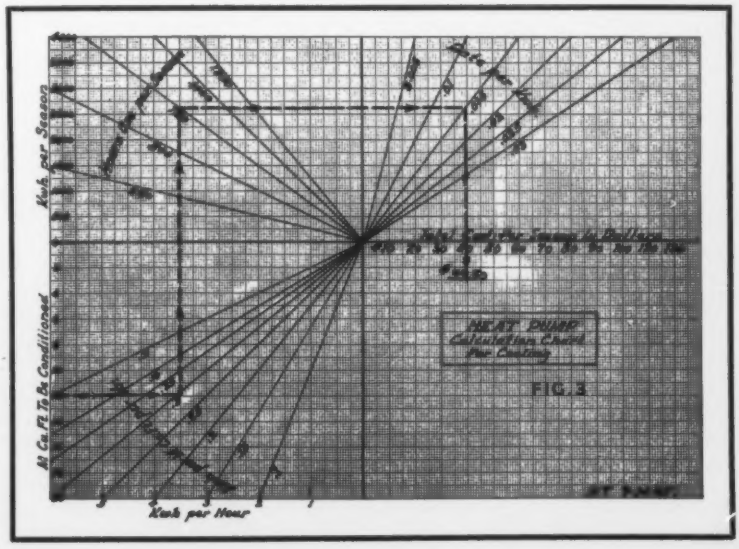


FIG. 3

TABLE II

Heat Pump Calculations for summer cooling use.

Design Range	KWH PER M CU.FT. PER HOUR, INCLUDING CIRCULATING FAN Residence Unshaded Thoroughly Insulated	Moderately Insulated	Standard Construction
10 Deg.	.302	.323	.356
15 "	.324	.354	.416
20 "	.344	.395	.490
	Residence Shaded		
10 Deg.	.240	.260	.292
15 "	.260	.292	.354
20 "	.282	.334	.406

in the basement or utility room. At reasonable electric rates its operating cost compares favorably with that of any fuel.

For these and other reasons the heat pump has attracted the interest of millions of home owners. But there are two important questions to which these people always want the answer: "How much does it cost to install?" and "How much will it cost to operate in MY home?"

Initial cost of the Terra Therm unit is somewhat uncertain at the present time because of limited production, but prices have been tentatively set at $1750 for the 3-hp unit and $2200 for the 5-hp unit, with an additional $300 to $500 being estimated as the cost of installation. In a newly built home, of course, a sizeable part of the first cost will be offset by the lowered construction cost.

As to the operating cost, a method has been developed to give a pretty close estimate. This simplified calculation is best exemplified by an actual example.

Sample Calculation

Let's take a home with a heated volume of 12,000 cu.ft., with moderate insulation. Table I gives us, with 80 degree design range, a heat loss of 60,000 Btu per hour. Table II gives us .292 as the kwh for cooling M cu.ft. of air per hour at a 15 degree design range. Then the heat pump calculation chart, Figure 2, and the cooling chart, Figure 3, give complete answers.

The data needed is as follows:

Heat loss per hour, 60,000 Btu; design range (–10 to 70 F.), 80 degrees; coefficient of performance, 3.5; degree days per heating season, 6,000.

Design range for cooling, 15 degrees; location, shaded; hours cooling per season, 750; rate per kwh, $.015.

Use of Chart Shown

With the above data, we then follow the dotted line on Figure 2, from the 60 M Btu heat loss across to the design range line (80 degree) then up to the c.o.p. line of 3.5 now horizontally to the 6 M degree day line and down to the rate per kwh., $.015, then across to the scale in the lower right corner where we find that the cost per heating season will be approximately $135.

If the heat loss figure used does not fall within the chart range, divide it by a figure that will bring it within range, get the answer and multiply that by the same figure.

Table I shows how to arrive at

Continued on page 65

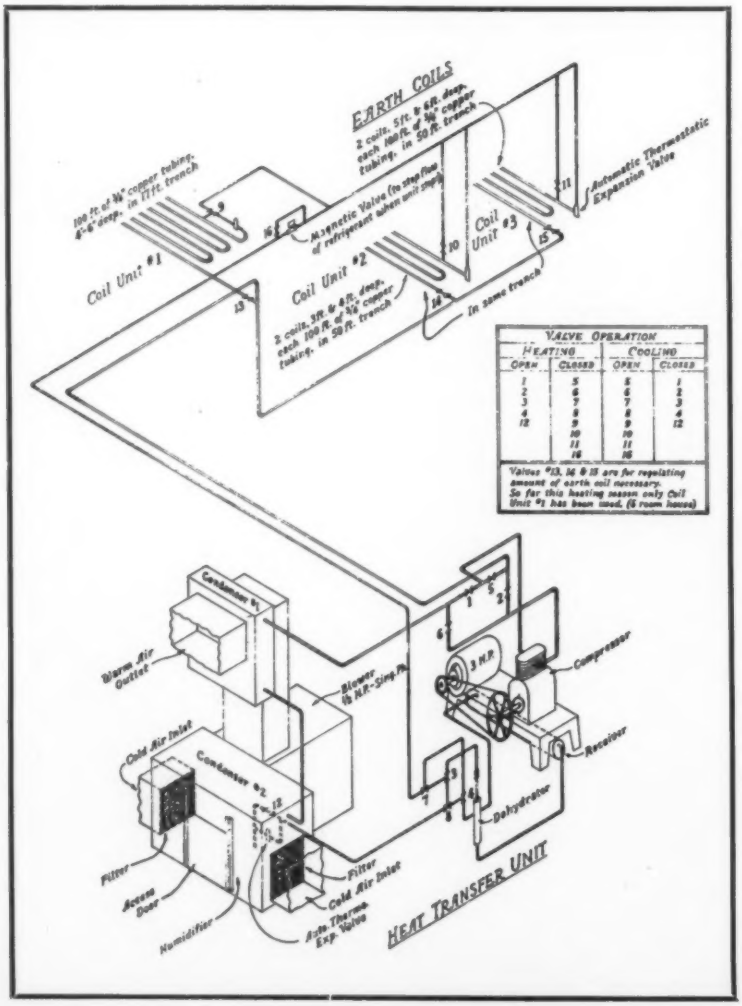


Fig. 4—This schematic diagram shows the basic arrangement of the "home made" heat pump system which inventor Webber installed in his own house. It is the progenitor of the present Terra Therm unit.

COMMERCIAL Refrigerator SALES NEWS

While *The Refrigeration Industry* is *not* the official publication of the National Commercial Refrigerator Sales Assn., the Editors assign this space each month to the association. The information below is furnished, for the most part, by the offices of the association and its local affiliates.

Russell Maintain Elected NCRSA President for 1949

Russell Maintain of Boston was elected president of the National Commercial Refrigerator Sales Association at that group's annual convention in Philadelphia. He will succeed W. C. Bader of Tulsa, Okla., when his term expires Dec. 31.

Other officers named to head the national organization were Clifford White, Cincinnati, vice president, and Ev. C. Newton, Jersey City, secretary-treasurer. The six newly named directors of the group follow: F. D. Stella, Detroit; I. W. Shell, Chicago; Paul Allen, Little Rock, Ark.; Glenn Chapin, San Antonio, Tex.; George R. Scott, New Bern, N. C.; and E. Ward Soanes, Buffalo.

Continuing for another year on the board of directors will be Emery E. Wilson, Portland, Ore.; S. J. Lipack, New York City; Sid Taylor, Des Moines, Iowa; Russ Maintain; A. E. Willey, Philadelphia; and I. Rosenberg, Pittsburgh, Pa.

Chief action at the meeting centered around drastic revisions in the organization's by-laws providing for widening of the scope of membership. For the first time, under the new regulations, manufacturers of commercial refrigeration equipment "and related products" will be permitted and invited to become "associate members" of the organization.

A bid also was made to enlist the support of smaller distributors and dealers of commercial equipment through reclassification of membership to provide for Class A members with an annual dollar volume under $100,000 and Class B members with an annual volume above $100,000. Class A dues will be $24 per year; Class B dues will be $48. Formerly all regular members paid $60 annual dues.

In changing its definitions, NCRSA now defines the terms "distributor or dealer" as "any firm or individual engaged in the purchase and resale of commercial refrigeration equipment, maintaining ample inventory, with an established place of business."

In another move closely allied with the association's membership drive, a committee of three was named to study and suggest methods of promoting regional associations within the national group. Members of this committee are Cliff White, W. O. Crabtree, and A. C. McFadden.

Also named was a licensing and codes committee consisting of Sid Taylor, I. Rosenberg, and Barnett Berch to study the proposed revision in the B-9 refrigeration code to determine how they might affect commercial refrigerator firms.

ADDS FREEZER LINE

Radio & Appliance Distributors, Inc., East Hartford, Conn., has been appointed distributor for International Harvester domestic refrigerators and home freezers in Connecticut and Western Massachusetts.

DISTRIBUTOR PUSHES SALES OF FREEZERS IN WINTER

Blasting the notion of some dealers that home freezers can't be sold during the winter months, The Harry Alter Co., Chicago, distributor of Crosley "Frostmaster" freezers, points the way to cold weather sales of this year-around product.

"Some dealers think of the home freezer as strictly a spring and summer item," the Alter firm points out in one of its fortnightly dealer bulletins, but as a matter of fact freezer

Continued on page 57

DEVELOPS EXPLOSION-PROOF WATER COOLER

Nursing a floating drydock across the Pacific without a single electrical breakdown proved valuable background experience for former chief electrician's mate John G. "Dutch" Wehrwein, now director of development for Sunroc Refrigeration Co., when he set about to develop this explosion-proof water cooler. Aptly designated by Sunroc as Model "SAFE", this unit employs the static condenser principle in electric water coolers for the first time. The unit is designed for applications wherever explosive fumes are present.

The curling rink in action. Here is an ideal cold-weather sport to round out a country club's seasonal schedule of activities.

A new field for you, Mr. Contractor:

CURLING FOR THE CLUB

Perhaps you are a patron of your local country club, Mr. Contractor, but is your country club a customer of yours? Here's an opportunity for a real selling job which will mean better business for both of you

CHANCES are you wouldn't know a curling rink if you saw one, but if that's the case you'd better take a good look at the pictures on these pages, for they illustrate a type of installation which can readily represent a very tidy piece of business for you.

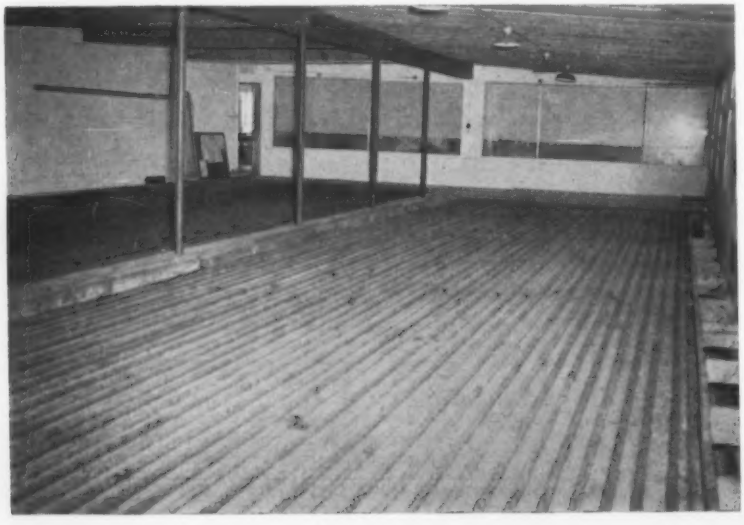
At least that's what J. Lawrence Hall, refrigeration contractor of Nashua, N. H., discovered when he undertook to build a curling rink for the Nashua Country Club.

Curling, in case you don't know, is an ancient Scottish game in which members of opposing teams slide 40-pound stones down the ice of the rink toward targets at either end.

In principle it is very much like a cold-weather version of shuffleboard, except that heavy stones equipped with handles, rather than flat wooden discs, are propelled toward targets which are circular in shape instead of triangular. The stones are slid by hand instead of being pushed with a stick but, as in shuffleboard, the general object of the game is to leave your own stone as near as possible to the high scoring section of the target, while knocking your opponent's stone out of the scoring area.

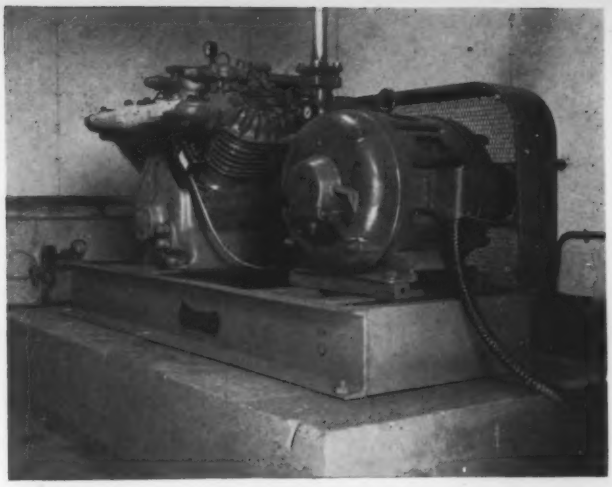
In any event, to have a curling rink you must have ice, and to have a rink which is not subject to the vagaries of the weather this ice must be created and maintained through the use of mechanical refrigeration equipment. And that, Mr. Contractor, is where you come in.

Your first job, of course, is to sell your country club on the idea of building a curling rink. And while



Brine pipes spaced on 4½-inch centers run the full length of the rink. Spectators sit in a normal-temperature room behind the glass partition at the far end of the rink.

An ordinary galvanized ash can was utilized so successfully in mixiing the system's brine solution that it was incorporated as a permanent part of the installation.



This 20-ton Brunner compressor comprises the heart of the rink's refrigeration system. Equipment selection was based on an 8 F refrigerant temperature.

this may be a little tough (what new idea *isn't* somewhat hard to sell?) the experience of the Nashua club should provide you with some mighty potent sales arguments, for this organization has found that curling provides an ideal off-season diversion for the club's golfers, drawing some 200 to 250 people a week to the club during the curling season, which runs in that area from about the middle of October or first of November on through until the middle of March.

By thus increasing the club's winter activity, curling has proven to be an ideal revenue builder for the club, as well as a means of providing entertainment for its members. And that in itself should be a big help to you in your selling job.

Now, having sold the rink, your next job is to build it. And right here is where you can take a few lessons from Mr. Hall.

The rink which he constructed is a double sized one, measuring 28 feet wide and 150 feet long. It is housed in an uninsulated structure which formerly served as a garage for club members. An extension was added to this structure to accommodate the full length of the standard rink.

Experience has shown, Hall reports, that an ice surface temperature of 20 to 24 F is very satisfactory for curling. That is where the nippy New Hampshire winters come in mighty handy, for if the room temperature rises as high as 28 F the ice tends to become moist, which creates slippery footing for the players and increases the friction of the stones, thereby making their control more difficult. If higher temperatures than this are prevalent, Hall assumes that the air above the rink should be refrigerated.

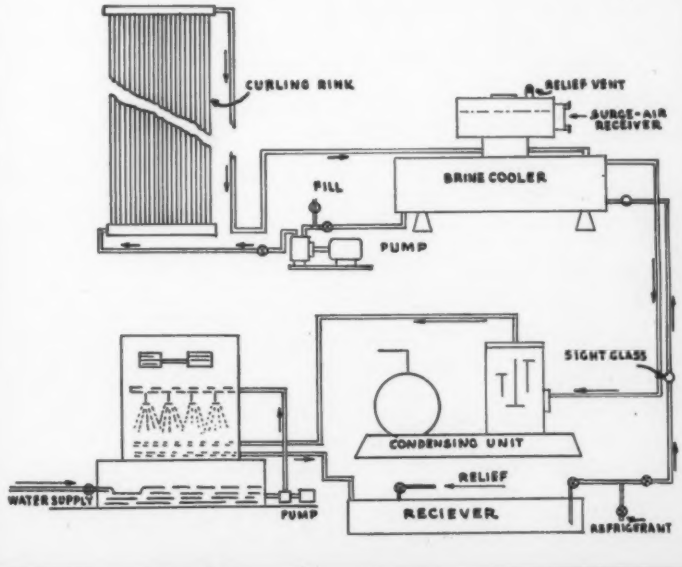
The rink itself is laid upon a concrete slab which is backed with a firm bedding of crushed stone. Embedded in this slab are wooden skreeds placed on about 7-foot centers and running crosswise the entire length of the rink. To these the brine circulating pipes are clipped.

The edge of the cement slab is equipped with a felt asphalt breaker strip which serves two purposes, namely, to act as an expansion barrier and to aid somewhat in the horizontal heat leak.

On this base, lines of 1¼-inch black

Continued on page 47

This schematic diagram illustrates the arrangement of the various elements in the curling rink's refrigeration system and indicates the system's hook-up.



ABOUT People

James A. Strachan has been appointed vice president of Airserco Mfg. Co., Inc., Pittsburgh manufacturer of refrigeration accessories. In this new capacity he will devote the major share of his attention to the sales and merchandising of that company's products. Strachan, onetime sales executive for Kerotest Mfg. Co., more recently served as sales manager of the original equipment division of Weatherhead Co. He also is a past treasurer and director of the Refrigeration Equipment Manufacturers Association.

Harry E. Seim, vice president and general manager of Bryant Electric Co., a wholly-owned subsidiary of Westinghouse Electric Corp., has been named general manager of the corporation's Sturtevant Division. He will retain his former position, however, and will continue to make his headquarters at Bridgeport, Mass., rather than at the Sturtevant plant at Hyde Park, Boston, Mass.

Henry Valve Co. has announced the appointment of **Roy C. Yantis** as general sales manager. Yantis joined the Henry organization last November as assistant sales manager. Previous to joining the Henry organization he was associated with Frigidaire Corp., Gibson Refrigerator Co., and was chief refrigeration engineer for Wolverine Tube Div.

Fred Stidfole has been elected vice president of Remington Corp., manufacturer of packaged air conditioning equipment. Prior to joining Remington as plant manager early in 1946, Stidfole spent twelve years with Carrier Corporation, holding the position of assistant production manager during the war. Other personnel additions announced by Remington include the appointment of **Leonard Clark** as design engineer and of **Howard Peters** as assistant sales manager.

Appointment of **Henry F. Goetz** as sales engineer and **William W. Reeves** as applications engineer has been announced by the condenser division of Fedders-Quigan Corp. Goetz is a mechanical engineer with wide experience in manufacturing practice. Reeves has been with Fedders-Quigan for about two years. He received his basic training in the engineering field as a design engineer.

H. F. Goetz

W. W. Reeves

David Ralston has been appointed sales manager in charge of open stock commercial refrigerator hardware for Grand Rapids Brass Co. **Harry DeGraaf,** previously sales manager, has been placed in charge of contract sales of refrigerator, automotive, stove, and plumbing hardware for both Grand Rapids Brass and its parent corporation, Crampton Mfg. Co. Ralston, who has had a long and varied experience in the refrigeration sales and service field, was operating his own manufacturing business prior to joining Grand Rapids. DeGraaf entered the refrigeration field in 1934.

Appointment of **W. R. Verigan** of Chelsea, Mich., as regional sales manager for the "Bev" line of specialty refrigeration products for the state of Michigan, has been announced by Artkraft Mfg. Corp. Verigan was formerly sales promotion manager of American Machinery Corp., Orlando, Fla.

Lyle A. Christensen, general sales manager of Marley Co., Inc., was recently appointed a vice-president of the company. Christensen has been with Marley seven years. He was sales engineer in the New York office for five years, moved to the home office in Kansas City in 1946, and became sales manager in 1947.

K. C. Goodrich has been appointed sales manager of General Refrigeration Div., Yates-American Machine Co. He replaces J. B. Edwards. Goodrich has been with General Refrigeration Div. for a number of years and was assistant to the sales manager prior to his promotion.

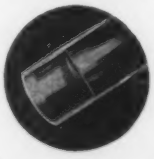
Rowland J. Miller, formerly general sales manager for appliances of Ohio Fuel Gas Co., has become associated with Clayton & Lambert Mfg. Co., Louisville, Ky., and Middletown, O., as special assistant to Charles F. Lambert, president. Miller's duties at Clayton & Lambert will be confined initially to the development

Continued on page 64

SPECIALISTS...

in precision-made *Formed* Tubes

Copper, Brass, Bronze, Copper-Nickel Alloys and Aluminum in sizes from .015" O.D. to 1" O.D., with wall thickness down to .004". Ready-to-install units to your specifications. Extra long coils of Copper Tube from 300 to 2500 feet in length. Capillary and Restrictor Tubes, Bourdon Tubes, Thermal Expansion Bulbs, Specially Shaped Grid Coils . . . and, of course, Anaconda Dehydrated Copper Refrigeration Tubes with the famous Cup Seal.



Precision tubes are our business, and we'll be glad to talk about them with you. 45306 Rev.

ANACONDA

Anaconda Refrigeration Tubes

FRENCH SMALL TUBE BRANCH OF THE AMERICAN BRASS COMPANY

Subsidiary of Anaconda Copper Mining Company—General Offices: Waterbury 88, Connecticut

In Canada: ANACONDA AMERICAN BRASS LTD., *New Toronto, Ont.*

'Pop" Hansen stands by his wife, Dorothy, (and don't you dare call her "Mrs. Pop"), as she checks over the company's books.

JUST ASK F

"Pop" Hansen didn't acquire that nic for he's had it ever since he was in hi seems to aptly characterize this unass always willing to lend a helping han

SUPPOSE you were a newcomer to the busy industrial community of Flint, Mich., just starting out there in the refrigeration service business. And suppose that you ran into a problem on some job which was just a little too tough for you. To whom could you turn for help?

Chances are that if you asked almost any refrigeration man in town he would suggest that you go right out North Saginaw St. until you came to 2404, then walk right in and . . . just ask for "Pop".

For that's the address of Hansen Refrigeration, Inc., whose boss, Einer G. Hansen, has answered to the name of "Pop" almost as long as he can remember. And Pop Hansen has the reputation around Flint of being one of the most patient and practical teachers in the refrigeration business.

Pop is rather aptly fitted for this strictly unofficial position by virtue of his natural and versatile mechanical ability, his long years of tool-in-hand experience, and his easy going, friendly personality.

Always willing to help a new man, or even an experienced competitor when he runs into occasional trouble, Pop is extremely modest about this phase of his activities. "It's really a 50-50 proposition," he quickly explains. "We all run into problems that stump us once in awhile, and I don't know any serviceman in town that I couldn't ask the same help from."

Pop, now 51 years old and long a father in fact as well as in fancy, recalls that he acquired that nickname while he was still in high school. He was born in Manistee, Mich., where his father was a cement contractor, and lived there until he was 17 years old. Then his father moved to Flint where he had been

R "POP"

THE REFRIGERATION INDUSTRY'S MAN OF THE MONTH

me because of his age,
school, but somehow it
ng, fatherly man who's
ven to his competitors

Lloyd Ward (right), domestic service manager of Hansen Refrigeration, Inc., watches Gerald Short, one of the shop men, start to work on a compressor unit. This heavy-duty vise, mounted in the middle of the floor, has proven invaluable by holding a unit so that it can be worked on from any angle.

awarded a contract to build curbs and gutters for the city, and he brought his family with him.

After school and on free days Einer worked in his father's shop, and he was always looking to the elder Hansen for advice and counsel. It was "Pop, what shall I do now?", and "Pop, how shall I handle this job?" The other fellows working in the shop soon picked this up, and it's been "Pop", not Einer, from then on.

From his association with his father, Pop became an expert cement finisher and brick layer. But in 1929, when the stock market crashed, the elder Hansen's business collapsed along with it, so Pop too was out of work.

By some fortunate coincidence, it was just at that time that a neighbor of the Hansens, Bert Clark, was having trouble with his truck. Clark, who now operates his own refrigeration contracting firm in Flint, was then working as a serviceman for the local Kelvinator dealer. He asked Pop if he would like to drive him around while he was making his service calls. Clark explained that while he would gladly buy the gas he couldn't afford to pay Pop for his time, but Pop, having nothing to do, willingly agreed to the proposition.

It was from this association with Bert Clark that Pop first developed his interest in the refrigeration field. In the spring of 1932, Clark managed to get Pop a job as a serviceman with the same Kelvinator dealer for whom he himself was working. Once actively in the refrigeration business, Pop never left it.

Pop hadn't been working with this Kelvinator dealer very long before Clark suggested that the two of them quit and start doing service work on their own. This arrangement worked out pretty well until Clark was offered and accepted the Kelvinator service franchise, leaving Pop on his own.

Pop soon discovered that he didn't

LEFT—
During the war years Pop and his associates operated out of this 4-car garage in the rear of the Hansen home. It was heated and insulated, but it lacked adequate space.

CENTER—
This is the store building into which the company moved earlier this year. Now that Pop has display space available, he is trying to boost the selling end of his business.

RIGHT—
Owen Dobbs, vice president of the firm, stands in the company's service truck as he checks its contents with Pop. The boys built up the body themselves to suit their needs.

Pop's modest home is conveniently located just a couple of blocks away from the store. That's the family's new car in the driveway.

Both of the Hansen children were in uniform during the war. Harold, Pop's only son, served overseas with the 71st infantry.

Daughter Shirley spent 19 months as a lady Marine. Now married and living in Detroit, she is about to make Pop and Dorothy the proudest grandparents in captivity.

have sufficient experience for this sort of a setup, so he went to work for Genesee Electric Co., an electrical contracting and refrigeration firm. Because this firm handled service on all makes of equipment, Pop rightly figured that it would give him the basic background of experience which he so sorely needed. He stayed with this job, soaking up every bit of refrigeration knowledge he could, until 1936.

In that year he left Genesee to go into partnership with Dale Tynam, a fellow employee, under the name of Hansen & Tynam. The pair rented a little garage building on Louisa St. and set themselves up in business to service all makes of household and commercial equipment. As time went on they also developed quite a business in rebuilding and overhauling the refrigeration equipment of various dairies which was too far gone for field repair.

Fire Forces Move

In 1939 a fire which started in the store building in front of their garage resulted in so much smoke and water damage that Hansen and Tynam were forced to move. This time they located in much larger and more pretentious quarters on Detroit St., Flint's principal business thoroughfare. Here their business progressed to the point where they employed one shop man and had two servicemen besides themselves working in the field.

In 1940 Tynam's health failed and his doctor advised him to get out of the refrigeration business. He asked Pop to buy him out, and Pop did, continuing the business alone.

The war hit Pop's business like it did many others. In 1942 he lost all of his help except a one-legged shop man who was one of the apprentices to whom Pop had taught the business.

Alarmed by this trend and figuring that he couldn't possibly keep the store going and continue to pay the $75 monthly rental with the volume of business that he could handle himself, Pop admittedly got "cold feet" in 1943 and decided to retrench. He fixed up the 4-car garage in back of the home which he had purchased just a couple of years before, insulating it and equipping it with steam heat, and moved his shop there.

For his office he used the enclosed back porch of his home. This made it quite handy for Pop's wife, Dorothy, who has handled the company's paper work right from the start, for now she could sandwich her household chores in between the answering of service calls and the keeping of the necessary records.

Trains New Men

It was during this period that Pop really started training new men in earnest, hoping that he could find some that would fit into his organization satisfactorily. But no sooner were they trained, he sadly recalls, than they would leave to go into business for themselves. Pop smiles as he remembers how many of them came back to him looking for jobs when they found that they couldn't make a go of it on their own.

At about this time a group of servicemen in Flint were talking of incorporating, and thus combining their efforts in one jointly owned concern. They wanted Pop to go in with them because he was the best known independent service operator in town (at one time he was handling service work for 37 dealers) and they knew that his name would lend the organization prestige. But Pop didn't like the looks of this deal so he turned thumbs down.

Corporation Is Formed

A little while later, however, he was approached by an enterprising young serviceman by the name of Owen Dobbs who suggested that he and Pop, together with a fellow named Kithcart, form a little corporation of their own. Pop still needed help badly and this looked like a good way of getting it, so, in 1946, he arranged for these two men to buy into his business and the firm of Hanson Refrigeration, Inc., was born.

Dobbs was no novice at refrigeration work, having been employed for some 12 years as a serviceman for McDonald Dairies. In fact, he was generally considered to be one of the best low-temperature men in town.

Continued on page 58

REFRIGERATION INDUSTRY News

9-POINT PROGRAM CITED BY EASTERN MANUFACTURERS

First meeting of the new season of the Eastern Refrigerator Manufacturers' Ass'n., Inc., of the City of New York, was held at the Hotel Commodore, on October 27. Members are in the business of manufacturing walk-in refrigerators, and all other allied fixtures for butchers, delicatessens, and similar commercial applications.

Albert Davis, president of the association, announced that the board of directors appointed Schneider & Edelstein as general counsel of the association, and Nathan Edelstein of the counsel's office was elected executive vice president of the association.

Nathan Edelstein is also executive vice president of the Refrigeration & Air Conditioning Guild, Inc., of New York City, and recording secretary of the National Association of Refrigeration Contractors.

The program of the association for the year 1948-1949 was presented to the members and approved by them. This program follows:

1. Compile statistics of costs of operation of refrigerator manufacturers, so that he (the manufacturer) will know exactly how to evaluate his services and thereby be able to ascertain the real cost of operation.
2. To demonstrate proper business practices.
3. To set up a modern, practical code of ethics.
4. To provide better public relations and bring to the attention of the buying public that refrigeration manufacturers and fixture men are doing a good job for the community.
5. To draw up standard business forms and to suggest proper books and records for the use of the members.
6. To cooperate with the Federal Trade Commission in promulgating fair trade rules and regulations.
7. To provide the members with current laws, rules and regulations and interpretations and opinions of the various courts and government agencies.
8. To create a close and friendly relationship amongst the manufacturers.
9. To provide for a better understanding between labor and management.

A concerted membership drive is to be instituted immediately. The goal of the membership drive is to triple the present membership.

Officers of the organization besides Davis and Edelstein are: Barney Berch, Schultz Co., 1st vice president; and Julius Anolick, I. Anolick & Son, secretary-treasurer. Board of directors consists of: Milton Schwartz, Abraham Schreckinger, Joe Collonese, Leo Katz and John Poth.

SIEGFRIED ASSUMES NEW REMA POST

W. A. Siegfried, president of Superior Valve & Fittings Co., Pittsburgh, Pa., has been elected to the position of secretary of the Refrigeration Equipment Manufacturers Association. He will fill the unexpired term of G. M. Kingsland.

Siegfried is a member of the board of directors of REMA, chairman of the public relations committee, and a member of a number of other committees.

TWO NEW FACTORY BRANCHES OPENED BY GENERAL CONTROLS

Two new factory branches, one in St. Louis and one in Oklahoma City, have been opened by General Controls Co. Addition of these two offices brings to 17 the total number of field branches operated by the company throughout the country.

B. L. Lerch is factory branch manager of the new St. Louis office.

O. D. Shaddox has been appointed factory branch manager of the new Oklahoma City office.

USAIRCO ACQUIRES GREAT NATIONAL

Great National Air Conditioning Corp. Dallas, Tex., is now a subsidiary of United States Air Conditioning Corp., Minneapolis, Minn., according to A. A. Feinberg, president.

Along with the announcement of the acquisition, Feinberg outlined changes in plans and policies.

The entire usAIRco lines of evaporative cooling units and gas products will be merged with those of Great National to give this new division a wider range of products. Great National, as a usAIRco subsidiary, will offer a completely new evaporative cooling program for 1949.

Don Groth, a veteran in the sale of evaporative cooling, will serve as general sales manager of Great National with general sales offices in Oklahoma City. Great National factories are located at Dallas and Corsicana, Tex.

L. P. Hanson continues as vice-president in charge of sales of usAIRco, which will concentrate on the manufacture of refrigerated store, window, and console refrigerated cooling units, and its complete line of cooling, heating and ventilating equipment.

FEDDERS MEN MEET FEDDERS PRODUCT

E. A. Boneville (extreme right), sales manager of the unit air conditioner division of Fedders-Quigan Corp., explains to his regional managers during a recent national sales clinic the featured improvements incorporated in the company's 1949 model room air conditioners. The regional sales managers are, from left: Sherman Bishop, west coast; Joel Wier, southeastern; John Hayes, Great Lakes; Edward Becker, New York and New England; John Seippel, north central; Ted Nemes, middle Atlantic; Leo Ledbetter, south central.

KANSAS CITY JOBBER OPENS TOPEKA STORE

Refrigeration Equipment Co., refrigeration equipment wholesaler with headquarters in Kansas City, Mo., has opened a new branch in Topeka, Kans. This new outlet, located at 332 Kansas Ave., will be managed by J. G. Yeager and will operate as a branch of the wholesaling firm's Kansas Corp. at Wichita, Kans.

The Wichita office has been moved to a recently purchased building at 318 North Main St. which provides greatly expanded display space and improved parking facilities.

Members of REMA and REWA Hold Joint Fall Meeting

(See page 46 for full details of the meeting.)

W. Vernon "Brum" Brumbaugh (right), new executive secretary of the Refrigeration Equipment Manufacturers Association, receives some pertinent pointers from his predecessor, R. Kennedy (Bud) Hanson, while taking a break between sessions of the joint REMA-REWA meeting at French Lick, Ind.

BRUMBAUGH IS NEW REMA SECRETARY

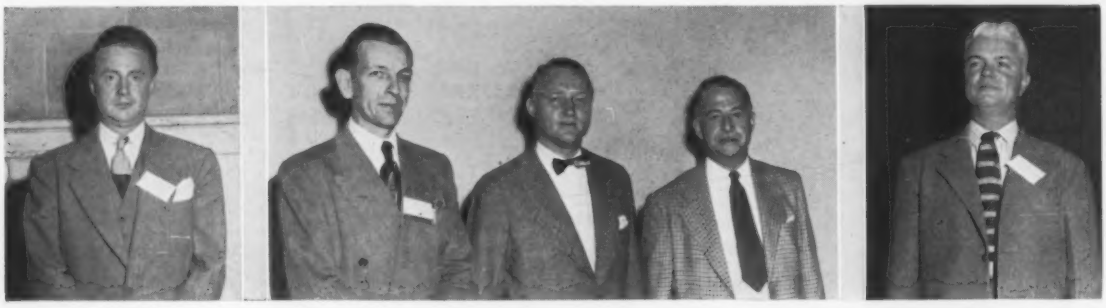
W. Vernon Brumbaugh of Chicago, Illinois, has been appointed executive secretary of the Refrigeration Equipment Manufacturers Association. Mr. Brumbaugh succeeds R. K. Hanson, who has resigned.

Brumbaugh is a veteran in the trade association field, having had 22 years previous experience with national associations representing manufacturers and distributors, including the National Lime Association, Washington, D.C.; The Waxed Paper Institute, Inc., Chicago, Illinois; and American Washer and Ironer Manufacturers' Association, Chicago.

He also served during 1944 and 1945 as the Washington representative of several industrial associations.

Brumbaugh is a member and past president of Washington Trade Association Executives, also a member of the American Trade Association Executives, and the Trade Association Executives Forum of Chicago.

He will be located at the headquarters office of REMA, 1107 Clark Building, Pittsburgh, Pa., until such time as details may be completed for moving the headquarters to some other city.



New officers and directors elected by the Refrigeration Equipment Wholesalers Association for the year of 1949 are shown in the pictures above. In the photo on the left is J. P. Glass, Chase Refrigeration Supply, Chicago, new REWA secretary. In the photo on the right is F. V. Wilson, Standard Brass & Mfg. Co., Port Arthur, Tex., newly elected director. Left to right in the center photo are: C. W. Eskridge, Henry V. Dick & Co., Inc., Charlotte, N.C., new REWA treasurer; H. Whiting Holt, Orr, Inc., Pittsburgh, Pa., president; and Edward C. Marsden, Marsden & Wasserman, Inc., Hartford, Conn., vice president. In the group photograph below, officers and directors of both organizations, REMA and REWA, are shown as they met during one of several joint sessions.

Facts about J-M Insulations Subject: ENGINEERING and APPLICATION

Efficient insulation must be engineered to the job

Any insulation will save some money. But only the right insulation, specifically engineered for a specific job, will save the most money for the longest time.

For this reason, refrigerating engineers have long recommended Johns-Manville Rock Cork as one of the most reliable, efficient, and permanent refrigerating insulations obtainable.

In cold room service, Johns-Manville Rock Cork is ideal because it is basically mineral in composition, and because it maintains its original low conductivity. It is moisture resistant and has numerous further advantages in that it will not absorb odors, cannot rot, and is resistant to termites and vermin.

When you specify Johns-Manville Rock Cork for refrigeration service, you are sure of getting the insulating material that's engineered for the temperature and service conditions of your job.

Efficient insulation must be skillfully applied

Rock Cork must be skillfully applied throughout the entire system for maximum efficiency. Across the nation there is a network of contracting firms specializing in the correct application of J-M insulations. These contractors employ skilled mechanics who are experienced in the proper application of J-M insulations in all types of service.

For more information on how this J-M insulation service can be of help to you in connection with your insulating problems, write to Johns-Manville, Box 290, New York 16, New York.

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Johns-Manville ROCK CORK INSULATION

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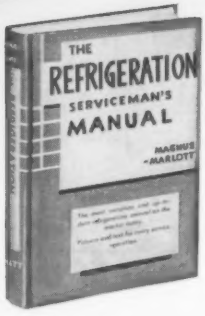

Pocket size—4¾" x 7⅛". Limp binding. 704 pages. $5.00 each.

THE REFRIGERATION SERVICEMAN'S MANUAL is the reference book that every repair man and owner should have at hand for ready reference.

The experienced man needs it to answer unfamiliar or forgotten points in refrigeration repair or building, and the apprentice or the new man starting out should have it at hand for checking his operations.

The book contains 30 reference tables and 139 line illustrations. Servicing instructions follow a logical pattern in which the problem is presented, the tools and equipment necessary are listed, procedure and general instructions follow, and the operation is completed with a short paragraph on precautions to be followed in making the repair.

WELL WRITTEN

The Refrigerating Engineering Magazine says: "This book is up-to-date and is well written – two virtues seldom encountered in the usual run of manuals for servicemen. Moreover it is complete. The authors have spared no effort to include the great majority of problems that the serviceman will meet . . . This reviewer finds the book readable – a quality that many authors of technical textbooks do not bother to include in their works. We recommend THE REFRIGERATION SERVICEMAN'S MANUAL to the practical engineer, technician, or student without reservation."

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MUTUAL PROBLEMS FORM BASIS OF REMA-REWA TALKS

A three-day joint membership meeting of the Refrigeration Equipment Manufacturers Association and the Refrigeration Equipment Wholesalers Association, held recently at French Lick, Ind., proved very successful in obtaining closer relations between the two groups and was pronounced a real success by the officers of the two organizations.

Meetings of the boards of directors of both REMA and REWA were held in conjunction with sessions of REMA's product sections and credit section, and an annual meeting of each organization.

Joint luncheon and dinner meetings of the boards of directors of REMA and REWA were held and proved an excellent way in which to discuss mutual problems.

High spot of the social activities of the 3-day meeting was a joint banquet preceded by a cocktail party.

W. Vernon Brumbaugh, new executive secretary of REMA, was formally introduced to REMA's membership.

During its business sessions, REWA elected a new slate of officers and directors (see Photos on this page) which will take office with the beginning of the new calendar year.

Speakers who addressed the assembly were H. F. Hildreth, president of REMA; H. G. Stern, president of REWA; E. C. Marsden, REWA, who spoke on "Wholesalers are Faced with a Diminishing Profit Margin"; Benton Willner, Inland Steel Company, "What is the Steel Situation?"; H. W. Holt, REWA, "Future Trends in Refrigeration Wholesaling"; and George S. Jones, Jr., Servel, Inc., who stressed the fact that "You've Got to Merchandise in '49".

WARRINGTON JOINS LOCKER ASSOCIATION

S. T. Warrington former senior agricultural economist with the U.S. Department of Agriculture and more recently active in various privately owned enterprises in the locker plant field has been appointed executive secretary of the National Frozen Food Locker Association.

He replaces Keith J. Bauder, of Fort Plain, N.Y., who had been handling this job on a volunteer basis since November, 1947.

CHARACTER EXPANDS

Character Refrigerators, manufacturer of Character full vision florists' refrigerators, has expanded its offices and showrooms in a new location at 47 West 28th St., New York City. This new location is right in the heart of the florist district and will enable Character Refrigerators to be in close contact with florists throughout the country.

ILLINOIS RSES ELECTS OFFICERS

New officers for the current year were elected by the Illinois Refrigeration Service Engineers Society at its 11th annual convention in Springfield, Ill. In the usual order, they are: Charles J. Fox, Springfield, 2nd vice president; Willis Stafford, Chicago, chairman of educational committee; Leslie Sturch, Rockford, 1st vice president; B. I. Clark, Aurora, secretary; W. J. McCarley, Joliet, president; Ralph Porter, Bloomington, treasurer; Loren Taylor, Carbondale, sgt.-at-arms.

steel brine pipe were laid lengthwise of the rink on 4½-inch centers. At the time of installation the steel pipe supply was still critical, so for the most part used pipe was employed. These pipes were joined with threaded couplings to save the expense of arc welding. Total amount of 1¼-inch pipe used was approximately 9300 linear feet, laid and threaded.

Single Circuit Used

Supply and return headers at each end were constructed of 4-inch pipe. Only one flow circuit of a single pass the length of the rink was used. Valving seemed unnecessary for the rink's requirements. The balance flow principle of supply and return was used.

Considerable thought was given to air pockets and expansion. From a 90 F room to a zero degree brine the pipe contraction would be about 1.0170 inches in the 150-foot length. A difference of 10 degrees between any two pipes would result in a shrinkage of .1125 inches. It is also a difficult problem to either couple pipe together or lay it straight enough to produce exact lengths over a 150-foot span.

Headers for the rink piping were made locally, and Hall himself assisted in their fabrication. This was done as an economy measure, as the lowest bid of one of the leading manufacturers was $348 per piece, or a total of $696.

Joint Allows Expansion

Holes were milled into the headers at a tangent to facilitate complete elimination of air in the supply header, thus assuring even distribution of brine to the entire rink. Into these milled holes 1½ x 5-inch nipples were arc welded, every other nipple having threads. This threading arrangement was alternated at the opposite end of the rink.

The last joint was made with an expansion joint union made by Dresser Co. These joints are fitted with two Neoprene ring gaskets and make possible a total allowable expansion of more than 2 inches in each coupling.

In the final coupling of pipe, consideration was given to room temperature and the distance between adjoining pipes and nipples. With the arrangement described, it is possible to change any pipe at any time, without welding and without disturbing the other pipe sections, should the occasion arise.

As for the refrigeration requirements, the original pull-down time had no limitations. Anything up to seven days are acceptable. The first ice freezing was to be about ¾ inch thick. This created an approximate load of 2,990,644 Btu. To this load must be added the slab load and the load of the loose sand sprinkled with water which was used as fill between the brine pipes.

Equipment selection was based upon an 8 F refrigerant temperature with a 20 to 23 F ice surface temperature. A 20-hp Brunner E-20000 Freon compressor was chosen to handle the job. This unit was connected to a Bush FG-40-12 evaporative condenser. Liquid refrigerant control is provided by the piloted operated type Phillips valve. The suction line

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One more shining example of a Marsh refrigeration instrument particularly well fitted to its job is this new Compound Retard Gauge. It provides a full range of both vacuum and pressure indication for systems using sulphur dioxide, methyl chloride, Freon and other refrigerants that will not deteriorate brass, but its retarded movement permits easy, close reading in the important range from zero to 50 lbs.
Produced in a handsome, business-like black steel case with pyralin crystal, this compound retard gauge is one more welcome addition to the Marsh line of quality refrigeration instruments — standard pressure and compound gauges, ammonia gauges, corresponding pressure-temperature gauges, remote reading thermometers and the popular new Marsh "Serviceman" line in single and 4-scale types as briefly described opposite.
All Marsh refrigeration instruments are available with the "Recalibrator"—quickest and best way to correct a gauge or thermometer that has been knocked out of adjustment. Ask for new catalog sheets covering the Marsh line.
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New 4-scale "Serviceman"
An all-purpose remote-reading serviceman's thermometer. Embodies all the features of the single scale "Serviceman" (below). In addition, shows equivalent pressures for Freon, sulphur dioxide, and methyl chloride.
Standard Serviceman
Checks them to 30 below. Has five feet of tubing, neatly concealed in case when not in use, slender enough to pass between gasket and jamb of closed refrigerator door. Large scale production has made it possible to reduce its price, making it a still more remarkable value.
MARSH
BUY FROM YOUR WHOLESALER
Refrigeration Instruments

is equipped with two large vertical Peerless heat exchangers.

A thermostat well placed in the return line entering the brine cooler contains the bulb of a Rancostat control. This starts and stops the brine pump, the refrigeration system being operated through low pressure control.

The pump used to circulate the brine has a rated capacity of 150 gallons per minute at 25-pound head. It is powered by a 3-hp motor. This pump has a cast iron body and impellor. A bronze body would have to be used if the PH value of the brine was below 8.5.

The brine cooler is a Bell & Gossett shell and tube unit, Model CR-128. This cooler has 123 sq. ft. of surface and a normal rating of 15 tons. It also has removable heads for the inspection and cleaning or the replacement of tubes, if the occasion should warrant.

In order to conserve on both initial cost and space, no brine tank was used. A receiver vent pressure tank of sufficient size to offer protection against the expansion and contraction of the 1000 gallons of brine was installed. This tank embodies a gauge glass for observation of the brine, thereby making a constant check possible. It also is equipped with a pressure relief valve.

The necessity of mixing 2 tons of calcium chloride brine prompted Hall to construct a special brine mixer. This was accomplished by using a regular galvanized ash barrel with cover. A ¼-inch mesh screen was fixed in position 8 inches from the bottom of the barrel. This screen supported the calcium chloride. A spray head was inserted at the top of the barrel to admit water, and an outlet at the bottom was tied into the brine circulating pump, making it possible to pump the water and weak brine over the calcium chloride.

Brine pipes at each end of the rink are arranged to accommodate the rubber footholds or "hacks" which are frozen into the ice.

This "home made" unit made it possible to dissolve the calcium chloride at the rate of about 100 pounds every 3 minutes, with absolutely no labor. In fact, the results from this unit were so satifactory that Hall painted the equipment and left it permanently in place in the machinery room for future use if need be.

The machinery room itself was formed from a section of the old garage building, so it also is uninsulated. In order to keep the temperature in this room up to at least 50 F, a thermostatically controlled unit heater was mounted on the control panel. Also located on this panel are the controls for the brine pump, evaporative condenser, water pump, and the condensing unit itself.

In actual operation a thermostat mounted on the wall of the machinery room starts the brine pump whenever there is an increase in brine

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temperature. By circulating the brine first, pressure is built up in the brine cooler and the limit switch on the compressor is cut in. The evaporative condenser then starts up simultaneously.

The evaporative condenser operates only when the temperature is above 32 F. When temperature drops below freezing, the water pump shuts off automatically and the compressor operates as an air cooled condensing unit.

Hall reports that no trouble whatsoever has been experienced with circulation or air binding of the rink. He also states that the surface temperature of the ice has remained very uniform and that virtually no expansion or contraction of the pipes has been noticed.

All in all this curling rink seems to have been an eminently satisfactory installation—satisfactory to the country club because it provided an added source of entertainment and revenue, and satisfactory to J. Lawrence Hall because it represented an $8000-plus piece of business which he otherwise never would have enjoyed.

HOUSING PROJECT GETS CENTRAL STATION SYSTEM OF AIR CONDITIONING

In the first such project of its kind, air conditioning from a central point is being furnished to the stores, professional offices, and a motion picture theater in the 16-acre shopping center of a multi-million-dollar housing project in New York City, according to an announcement by Carrier Corp.

In providing this service, New York Life Insurance Co., the builder, has recognized air conditioning as a necessity for modern stores—just as fundamental to their operation as heat, light and water service, Carrier officials stated.

The installation is being made at Fresh Meadows, Long Island, where, on a 170-acre tract, a half-hour from the heart of New York, a completely integrated community for 10,000 persons is being built. It includes 3,000 apartments, playgrounds, landscaped lawns, garages, model shopping district, and a new public school.

To furnish air conditioning for the shopping center, chilled water, piped through more than a mile of 12-inch pipe under a 100-pound head pressure, will be delivered to the individual stores. To provide this service, two 600-ton electric-driven Carrier centrifugal compressors have been installed in the central power station.

This centralized distribution of chilled water relieves the individual stores of installing their own compressors, and provides them with complete air conditioning service on an extremely economical basis. It eliminates the need for large individual electric service, and the necessity of obtaining and disposing of the condenser water.

The Carrier compressors in the central plant will be supplied with condenser water from two specially bored wells. The used water from the condensers will be returned through two diffusion wells to the same underground strata from which it is pumped.

Further economy results from the fact that the central power station staff will maintain and service the compressors, relieving the store owners of individual machine maintenance.

Air ducts, fans, and all necessary adjuncts for an air conditioning system are being installed in the stores as they are built.

Rotary Seal

REPLACEMENT UNITS

are available not only for the smaller size compressors normally used for household refrigerators, but also for...

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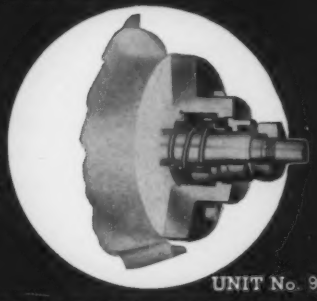

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SOLVE MAINTENANCE PROBLEMS

All-Steel GAUGE SETS

All-Steel construction. Automatic shut off of liquid in case of glass breakage. Composition packing rings give long life, no-leak seal.

Semi-Steel SHUT-OFF VALVES

Highest grade non-porous metal — full size ports — clean cut threads. Double seated stem—Shank design base — perfect alignment. Long life packing ring.

See your jobber or write for prices.

CYRUS SHANK CO.
631 W. Jackson Blvd., Chicago 6, Ill.

recommended for painted or enameled surfaces...

Jarrow...

Refrigerator Door Gaskets Are Again Made From Crude Rubber

Always Demand These Quality Gaskets

JARROW PRODUCTS
420 N. LA SALLE ST., CHICAGO 10, ILLINOIS

Useful LITERATURE

The publications listed below are available to readers without charge. Simply list on the postcard provided in this issue the key numbers of the items you wish to receive. Your requests will be forwarded directly to the companies concerned.

347—Door Hardware . . . A 28-page catalog describing, illustrating, and listing specifications of a line of industrial refrigerator door equipment, including door hardware, door gaskets, track ports, and accessories. Available from Chase Industrial Refrigerator Equipment & Engineering Co.

348—Evaporative Condensers . . . Bulletin R-162 providing complete technical data on the Kramer line of evaporative condensers, including mechanical descriptions and specifications, performance data, and correction factors. Bulletin R-162-A features rapid selection tables for one, two, and three-compressor circuits. Available from Kramer Trenton Co.

349—Coldspot Information . . . A new catalog giving information on the repair and rebuilding of Coldspot units. Available from Precision-Built Tool & Parts Co.

350—Vibration Absorbers . . . Bulletin VA-2, offering complete description, application data, and operating specifications of a line of packless vibration absorbers manufactured primarily for the air conditioning and refrigeration industry for use wherever vibration and noise is developed from pulsating pressure on gas or liquids. Available from Packless Metal Products Corp.

351—Brazing Instructions . . . Bulletin 17 providing illustrated step-by-step instructions for brazing fittings to pipe and tubing with "Easy-Flo" and "Sil-Fos" compounds. Available from Handy & Harman.

352—Commercial Cabinets . . . A pocket-size folder illustrating, describing, and listing specifications of the complete Loudon line of commercial refrigerator cabinets and home freezers. Available from Loudon Mfg. Co.

302—Grilles . . . Catalog No. 47, a 64-page book covering the complete line of registers, grilles, and accessories for gravity, air conditioning, and commercial applications manufactured by United States Register Co. Complete selection charts are included.

ELECTRICAL EQUIPMENT

The "Complete" catalog (No. 148) of electric motors, parts, supplies, controls, insulation, tools, and equipment, a 238-page publication which is plastic covered and plastic bound, is offered to all regular refrigeration dealers or service shops which will send a request on their business letterhead directly to Complete-Reading Electric Co., Inc., 100 South Jefferson St., Chicago 6, Ill.

TRANSPORTATION MAP

A complete and factual transportation map of the United States, showing highways, railroads, and airlines, as well as principal cities, towns, and villages, has been published by Wolverine Tube Division. A copy of this map may be obtained without obligation by writing to Wolverine Tube Div., Calumet & Hecla Consolidated Copper Co., 1411 Central Ave., Detroit 9, Mich.

304—Welding Electrodes . . . A new pocket guide to "Airco" arc welding electrodes which is thumb-indexed to enable the user to quickly select the proper electrode for any particular job. A complete comparison chart is included. Available from Air Reduction Sales Co.

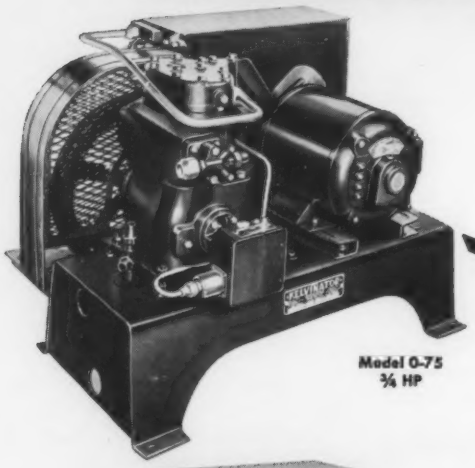
305—Hardware . . . A 20-page catalog (No. 31) covering the line of refrigerator hardware manufactured by Grand Rapids Brass Co. Detailed installation drawings and specifications are given to simplify the selection of the proper hardware, especially for replacement sales.

337—Vise Unit . . . An 8-page brochure (P-601) describing the "Powrarm" unit for positioning and holding work at any desired angle. Two models are shown, one mechanically operated for light work and the other hydraulically operated for heavy duty applications. Available from Wilton Tool Mfg. Co.

BUY FROM YOUR REFRIGERATION WHOLESALER

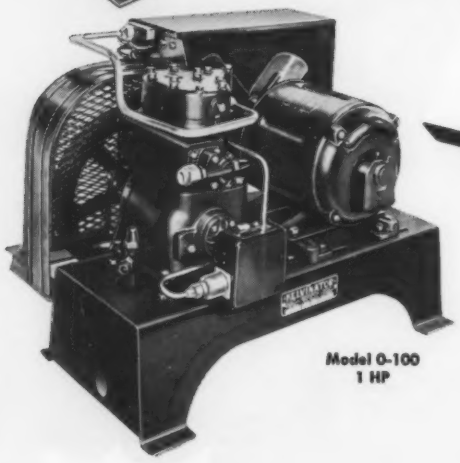
Now! The two you've asked for!

KELVINATOR'S 2 NEW CONDENSING UNIT MODELS!



Model O-75
¾ HP

¾ HORSEPOWER
A NEW HIGH CAPACITY UNIT



Model O-100
1 HP

1 HORSEPOWER
A NEW HEAVY DUTY UNIT

Here they are—just what you have been asking for. These two big, new, open type condensing units have all the famous Kelvinator features which assure *superior performance* and *low cost operation.*

With these two new units, you can now choose from a range of five Kelvinator open type models . . . from ¼ to 1 horsepower.

For your next new or replacement installation, choose Kelvinator—and you can be sure you've selected the *right* condensing unit for the job. All models are available for immediate shipment. Just call your nearest Kelvinator Distributor or Zone Office. Kelvinator, Division of Nash-Kelvinator Corporation, Detroit, Michigan.

FOR TROUBLE-FREE PERFORMANCE, USER ACCEPTANCE AND COMPETITIVE PRICE GET

***Kelvinator*—of Course!**

DEPEND ON KELVINATOR FOR ALL YOUR REFRIGERATION NEEDS

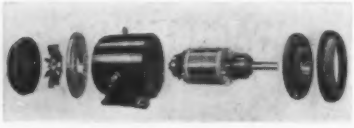
NEW Products

For further information on any of these products, simply list on the postcard provided in this issue the key numbers of the items in which you are interested. Your requests will be forwarded directly to the companies concerned.

Explosion-Proof Motor • P-322

Product: 736-frame explosion-proof motor.

Manufacturer: Wagner Electric Corp., St. Louis, Mo.



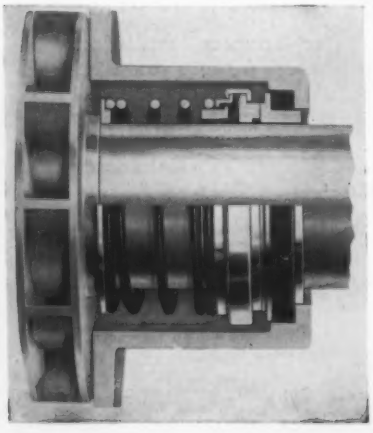
Features: Totally enclosed fan-cooled motors in 736-frame size, in ratings of 200-hp at speeds of 3500, 1750, 1160, or 870 rpm, 550 volts or less, and 150-hp at the same speeds for operation on 2300 volts. Approved by Underwriter's Laboratories for Class I Group D and Class II Groups E, F, and G hazardous locations.

Rotating Shaft Seal • • • P-323

Product: "Roto-Flex" rotating shaft seal applicable to refrigeration compressors and other industrial uses.

Manufacturer: Gits Bros. Mfg. Co., Chicago, Ill.

Features: Positive seal that prevents leakage of liquids or gases along a rotating shaft when under pressure or vacuum. Only three main components makes it easier to incorporate into user's design and simpler to install. Rotating member is an integral unit and cannot come apart. It is held by a compression spring against the fixed surface. Operating conditions determine amount of spring pressure necessary to make sealing positive. Available in single and double units.



Vegetable Case • • • • P-324

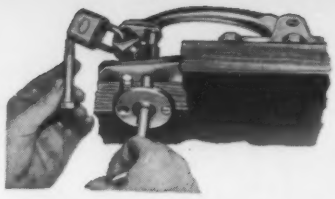
Product: Refrigerated vegetable case.

Manufacturer: Coldin Cabinet Co., Inc., Bronx, N. Y.

Features: Increased display and refrigeration of fresh fruits and vegetables. Model VX-6 (illustrated) has 6-cu. ft. capacity, but unit is also available in 8 and 10-cu. ft. sizes. All porcelain exterior, corrosion proofed pleated wire shelving. Top section has doubled glazed hard rubber sliding doors. Bottom storage compartment has hinged doors. Coils are engineered to maintain high humidity in case.

Emergency Escape Latch • P-325

Product: Latch for walk-in refrigerators which will permit escape from the interior of a refrigerator even though the latch is padlocked on the exterior.



Manufacturer: Kason Hardware Corp., Brooklyn, N. Y.

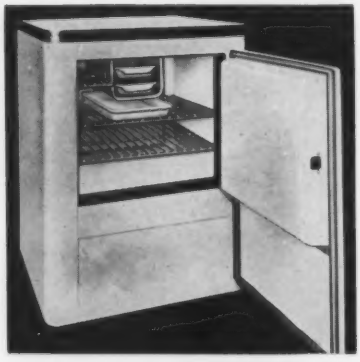
Features: New emergency escape latch is identical in appearance, and is applied to the door in much the same fashion as the standard latch for a walk-in refrigerator. The standard inside release handle comes equipped with a special wrench for use with the special emergency escape device. By using the wrench, the trapped person can loosen the bolt which holds the padlocking device in place. When this bolt is loosened, the padlocking device falls free, and the inside release handle functions as if the latch had not been padlocked.

Table Top Refrigerator • P-326

Product: "Refrigerette" porcelain table top electric refrigerator.

Manufacturer: I. R. Rozett & Associates, Chicago, Ill.

Features: Measures only 34½ inches high but has 3½-cu. ft. capacity and will hold approximately 85 pounds of foodstuffs. Contains two shelves and one cutaway, permitting storage of milk and tall bottles. Approximately 6 pounds of ice cubes are produced at one time. White porcelain top that is stainproof, sanitary, and easily cleaned.



Pipe Bender • • • • P-327

Product: Lightweight portable hydraulic pipe bender.

A tiny drop of water . . .

REFRIGERATION'S BIGGEST PROBLEM!

LIQUID Sulfur Dioxide ANSUL* — LIQUID Methyl Chloride ANSUL*

*REG. U. S. PAT. OFF.

Important Questions . . . IN SELECTING A DRIER

1. Does the material dry the refrigerant below the corrosion limits when placed in the liquid line? In the suction (vapor) line?
2. Does the material dry the refrigerant below the limits for ice formation with methyl chloride and the "Freon" refrigerants?
3. Does the material accomplish the drying in one passage of the refrigerant, or is it slow, i.e., requires several passages?
4. Does the material deteriorate* in physical character in handling or when it removes water from the refrigerant?
5. Does the oil affect the drier adversely?
6. Does the drier corrode?

DRYING POWER OF VARIOUS MATERIALS

Drier	Refrigerant	Liquid or Vapor	Max. Residual Water Concentration After Passage Through Drier	
			.25% Initial Water Concentration	.02% Initial Water Concentration
ACTIVATED ALUMINA	Sulfur Dioxide	L	.15	.005
		V	.01	
	Methyl Chloride	L	.02	.006
		V	.01	
SILICA GEL	Sulfur Dioxide	L	.15	.006
		V	.01	
	Methyl Chloride	L	.01	.004
		V	.01	
DRIERITE (Calcium Sulphate)	Sulfur Dioxide	L	.15	.009
		V	.08	
	Methyl Chloride	L	.05	.003
		V	.04	
CALCIUM CHLORIDE $CaCl_2$	Sulfur Dioxide	L	.09	.013
		V	.03	
	Methyl Chloride	L	.10	.005
		V	.04	
CALCIUM OXIDE CaO	Sulfur Dioxide	L	.20	—
		V	.15	—
	Methyl Chloride	L	.15	—
		V	.08	—
BARIUM OXIDE BaO	Sulfur Dioxide	L	.20	.017
		V	.15	
	Methyl Chloride	L	.05	.006
		V	.05	

SEND FOR THIS BULLETIN

An informative reprint, "REFRIGERANT DRIERS," will be sent on request. No obligation. Send for it today.

ANSUL WHOLESALERS are ready and equipped to render an intelligent, co-operative service to refrigeration engineers and maintenance men on problems which arise from time-to-time in the operation of refrigerating systems.

ANSUL REFRIGERANTS ARE AVAILABLE AT LEADING WHOLESALERS EVERYWHERE

ANSUL CHEMICAL COMPANY
REFRIGERATION DIVISION, MARINETTE, WISCONSIN

DISTRIBUTORS FOR KINETIC'S "FREON-11," "FREON-12," "FREON-21," "FREON-22," "FREON-113" AND "FREON-114"

Manufacturer: Electric Cord Co., New York City.

Features: Forms smooth, uniform pipe bending operations right on job. Minimum weight without loss of strength. Combined weight of jack and frame is only 83 pounds. Removable hydraulic jack simplifies service problem and can be used for many other purposes. Open jaw construction speeds up production. 30-inch steel frame is electrically welded and heavily reinforced. Comes complete with ¾, 1, 1¼, 2, and 2½-inch dies.

Offset Screwdriver • • • P-328

Product: Aero #5200 offset screwdriver.

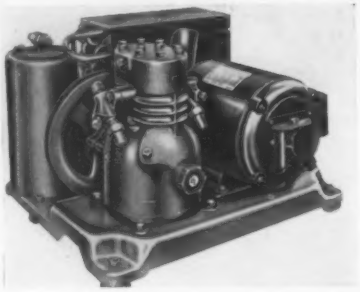
Manufacturer: Aero Tool Co., Los Angeles, Calif.

Features: Designed to permit the application of leverage to drive screws and to reach into areas inaccessible to common screwdrivers. Ratchet permits use of this tool in confined spaces and the reversing lever makes the tool suitable to drive or remove screws. Has two blades, one for large and one for small screws. Ball and grip prevent injury to hand. Overall length is 3⅞ inches. Standard tool made for slotted screws only, but special drivers are available for Reed & Prince, Phillips, and other screws.

Condensing Unit • • • • P-329

Product: ½-hp "Blu-Cold" packaged air cooled condensing unit.

Manufacturer: Lehigh Mfg. Co., Lancaster, Pa.



Features: Designed for use in self-contained applications where small mounting and overall dimensions are essential. Measures only 12⅜ inches high and 18¾ inches long. Capacity ratings are from 1450 Btu at –25 F to 6100 Btu at 45 F. Complete interchangeability of parts with ¼ and 1/3-hp Lehigh condensing units.

Sandwich Unit • • • • P-330

Product: Streamlined line of stainless steel sandwich units.

Manufacturer: Stanley Knight Corp., Chicago, Ill.

Features: Massive in appearance. All welded steel construction. Insulation is genuine vegetable corkboard. All units equipped with modern blower type fin coils. Stainless steel hoods and laminated cutting boards for convenient cleaning. Plate

HEAVY DUTY BEER COOLERS

by Temprite

Out of production since before the war, Temprite heavy duty beer coolers are back again to help you make more money. Now is the time! This is the season! Tell your customers about Temprite. You can now offer 7 new improved models for every type of beer cooling application. Outstanding features include specially shaped stainless steel coils, compact size and patented temperature control.

Write or wire now for details.

TEMPRITE PRODUCTS CORP.

Originators of Instantaneous 80° 40° *Liquid Cooling Devices*

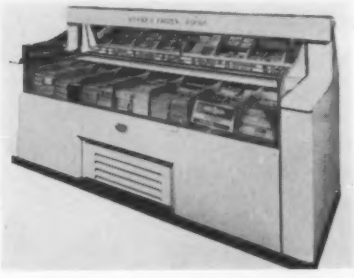
41 PIQUETTE AVENUE DETROIT 2, MICHIGAN

shelves extend outward to prevent crumbs dropping on doors and drawers. Model SU46 (illustrated) has 10 1¼-quart insets and four 2¾-quart insets. Refrigerated storage space of 12.5 cu. ft. capacity. Expansion valve, storage shelf, and automatic refrigerator light on all units.

Frozen Food Case • • • P-331

Product: Model 2508M frozen food sales display case.

Manufacturer: Sherer-Gillett Co., Marshall, Mich.



Features: Sub-zero eutectic plate coils used as compartment dividers, plus two additional full-length eutectic plate coils, insure uniform low temperature throughout display section and facilitate orderly displays. One coil is installed vertically in back of the divider coils, while the other is installed horizontally atop the rear of the dividers. Full-length mirror. Fluorescent lighting. Completely self-contained, this unit is shipped from factory equipped with ¾-hp air cooled condensing unit ready for immediate operation.

Appliance Truck • • • • P-332

Product: "Easload" hand truck for moving appliances.

Manufacturer: Colson Equipment & Supply Co., Los Angeles.

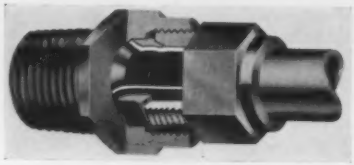
Features: Entire weight of load rests on 10-inch rubber tired, roller balanced wheels. When truck is erect, wheels lock lock in forward position for loading. As load is picked up, a convenient foot pedal releases the wheels and they swing back, locking in balanced position to carry the load. Small rubber wheels under toe plate assist in loading and unloading. Double ratchet is provided for clinching either one or two 12-foot straps around the appliance.

Self-Flaring Fitting • • • P-333

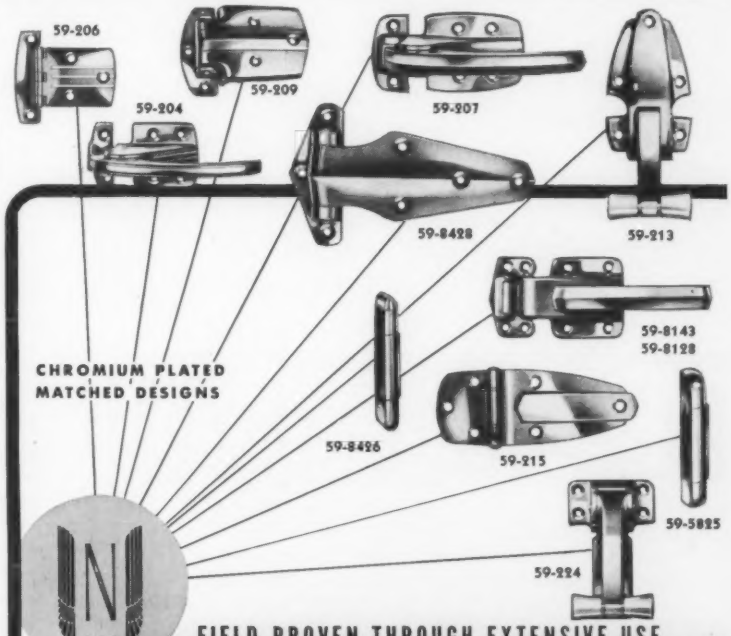
Product: "Uniflare" self-flaring, leakproof tube fitting.

Manufacturer: Scovill Mfg. Co., Waterbury, Conn.

Features: Has only two parts, body and nut, which makes it easy to connect. Thrust collar in the nut shears off, under ordinary wrench force, and clamps onto the tube to form a perfectly sealed joint. By eliminating preliminary flaring operation and its accompanying wasteful tube cracking, this fitting is said to save time, labor and material. No special skill or flaring tools are required for assembly. Provides 37-degree flare for maximum strength, an inverted-



type joint which provides multiple sealing surfaces, and intimate tube support designed to minimize vibration fatigue. Fitting can be taken



FIELD PROVEN THROUGH EXTENSIVE USE...

NATIONAL LOCK

REFRIGERATOR HARDWARE

PREFERRED BY MANY FOR A WIDE RANGE OF JOBS

- REACH-IN CABINETS
- BACK BARS
- BOTTLED BEVERAGE COOLERS
- MILK COOLERS
- DISPLAY CASES
- FLORISTS BOXES
- DRAFT BEER EQUIPMENT
- STOKERS
- COIN-OPERATED REFRIGERATED DISPENSING MACHINES
- LOW TEMPERATURE HORIZONTAL OR VERTICAL CABINETS
- MANY OTHER TYPES OF REFRIGERATING EQUIPMENT

Ask your jobber for detailed information, including prices, of this attractive, durable refrigerator hardware for commercial and domestic applications. Prompt delivery can be assured on your orders.

NATIONAL LOCK COMPANY • ROCKFORD, ILLINOIS

REFRIGERATOR HARDWARE DIVISION

apart and reconnected many times without weakening seal or damaging the flare.

Reach-In Refrigerator • P-334

Product: Model 20SD reach-in refrigerator for remote or self-contained application.

Manufacturer: Gloekler Refrigerator Co., Erie, Pa.

Features: 20.2-cu. ft. capacity. All stainless steel interior. White baked "Dulux" exterior. Height, 68 inches; depth (including hardware), 34 inches; width, 39 inches. Insulated with 3-inches of Fiberglas. Large freezer compartment will hold approximately 24 packages of frozen food. 4 ice cube trays. Automatic interior light.

Beer Tap • • • • P-335

Product: "Taylor Tap" double-action dispenser for draft beer.

Manufacturer: Taylor Precision Manufacturing Co., Rocky River, Ohio.

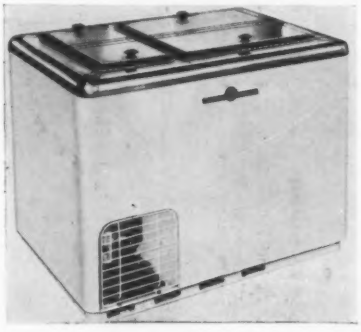
Features: Controls both beer and foam, giving positive control over the drawing of every glass of beer from the keg. A recarbonating chamber located within the cooling box, together with a scientifically constructed and refrigerated faucet, completely eliminates the waste of wild beer and loss of flat beer. Available in sizes to fit all direct-draw and special boxes.

Ice Cream Cabinets • • P-336

Product: A new 1949 line of redesigned and re-engineered ice cream cabinets with increased capacity.

Manufacturer: Kelvinator Div., Nash-Kelvinator Corp., Detroit, Mich.

Features: Five new models from 2-hole to 8-hole, double row size, plus a special 20-cu. ft. storage cabinet.



New position of refrigeration unit assembly provides greater usable interior space without increasing exterior dimensions. Most of this space-saving results from new wrapper-type condenser, the coils of which are welded to the interior surface of the cabinet shell. All models lighter in weight, by as much as 220 pounds in the 8-hole cabinet. Double row models have new square "change-about" lids, which may be turned around to open from either side or ends of cabinet, offering easier access.

Now I KNOW whether the System is Wet or Dry

I use the

DFN MOISTURE INDICATOR*

IN A FEW minutes, with the DFN Moisture Indicator, you know whether the trouble in a system is due to moisture—you learn how wet it is—determine the lowest temperature at which the system can operate safely—know positively that the system is dry when you finish installation or servicing, to prevent expensive callbacks.

The DFN Moisture Indicator is easily, quickly installed at gauge connection, without shutting down or pumping down the unit. It will function accurately at refrigerant temperatures up to 160° F. Recommended for Freon and Methyl Chloride systems. Packed in handy metal service kit.

Once you use the DFN Moisture Indicator, you will never be without it. Ask your wholesaler to show it to you. Or write us for Bulletin M-2, giving full details.

Pat. Appl'd for

— and to KEEP Systems Dry and clean, use

DFN DEHYDRATORS, FILTERS, STRAINERS

Most efficient, most complete line to meet every problem of moisture, sludge, sediment. Designed thru research, built with experience, proved in use. Say DFN, for the best!

McINTIRE CONNECTOR CO.

257 Jefferson Street, Newark 5, N. J.

Continued from page 35

users find their units more useful in the winter months.

"During cold weather, cooking is of far greater importance in the home. Instead of preparing hamburger barbecues or picnic lunches, the housewife has a mealtime production job to do.

"The freezer will help her enormously in this task. She can cook double the amount, serving one half immediately and storing the unused half in the freezer for a meal the following week. This cuts her cooking time in half. Also she can take advantage of grocery store bargains, and thus save substantial amounts on her food bills.

"We urge dealers to keep their freezers on display all during the winter, plugging in and operating, with the lid up and the cabinet at least partially filled with frozen foods.

"For demonstration, we suggest that they get a loaf of pre-sliced bread, place the date of purchase on the wrapper, and put the loaf in the freeezer. Have a pop-up toaster handy and, whenever a woman shows any interest in the freezer, take a slice of the frozen bread, show her the date on the wrapper, and then put a slice in the toaster. Once she tastes the delicious toast this makes, a large part of your sales work will be over."

FOGEL APPOINTS HORTZ STORE PLANNING CHIEF

Robert Hortz, designing engineer, has been named by Fogel Refrigerator Co. as director of the company's store planning division. In this capacity he will advise and assist Fogel distributors and dealers in all phases of modern food market planning.

Hortz boasts a background of nearly 20 years in the field of store layout and design, from the smallest independent units to the largest supermarkets. He also has had considerable experience in the design and layout of cocktail lounges, restaurants, kitchens, and similar establishments. He has a recognized flair, the company feels, for combining eye-appealing design with up-to-the-minute merchandising methods.

FROZEN FOOD PACKER USES HALDORF CASES

Market Distributors, of Long Beach, Calif., distributors for 'Pictsweet' frozen foods, have standardized on the Haldorf "Sno-Case" for resale to their retail outlets.

Carload shipments of the 18-cu. ft. units have been going forward from the Haldorf Mfg. Co. plant in Philadelphia, for the past several months, to their West Coast destination.

The unit selected is a variation of Haldorf's 4718-C Sno-Case.

FREEZER DEALERS OFFER FROZEN FOOD BONUS

Bergman Norge Co., Inc., Norge distributor in the Buffalo, N.Y., and Erie, Pa., areas, now is making available through its dealers a free offer of Dulany frozen foods with the purchase of any model Norge freezer.

The Dulany offer cosists of 76 assorted packages retailing at about $25. Retail home freezer sales have increased materially since the start of this campaign in July, according to Irving Block, sales promotion manager for the distributorship.

TWO IMPORTANT CONSIDERATIONS:

1. AMOUNT OF MATERIAL NEEDED. Only 1 part of Thawzone to 150 of refrigerant. (1 to 300 in hermetic units).

2. SERVICE TIME. Thawzone ordinarily eliminates moisture troubles with ONE application . . . no call-backs . . . minimum cost . . adequate profit.

Thawzone is the MOVING dehydrant . . . always circulating and searching out moisture. It works quickly and efficiently in new, reconditioned or old systems. Used extensively in systems operating perfectly, to prevent future troubles.

Your refrigeration wholesaler has it.

HIGHSIDE CHEMICALS CO.
195 VERONA AVE. NEWARK 4, N. J.

ALSO MAKERS OF TRACE* REFRIGERANT LEAK DETECTOR

*TRADE MARK REG. U. S. PAT. OFF.

MAN OF THE MONTH . . .

Continued from page 42

Kithcart's experience, on the other hand, had all been in the domestic field, and at that only on a part time basis, as he was regularly employed in the Buick factory. It wasn't long before he decided that service work on a full time basis was too tough a business to suit his taste, so he sold out his interests in the Hansen firm to Lloyd Ward, who had had about 10 years of experience in domestic service work with appliance stores.

Ever since the corporation was formed Pop had been looking for more satisfactory quarters for the company, but it wasn't until last spring that they landed their present location.

As the corporation is now set up, Pop is president, Dorothy is secretary and treasurer, Dobbs is vice president, and Ward is domestic service manager. The company now employs two shop men, Gerald Short and Ted MacKay, who is a G.I. trainee.

Pop says that he agreed to the incorporation for two reasons, first because he felt that it was the best way of getting some employees who would really stick with him, and second because a previous unfortunate partnership experience had made him want to be sure that each member of the firm shared in its responsibilities as well as in its benefits.

While he points out that there are some disadvantages to a corporate setup—from a tax standpoint, for instance—he feels that the present arrangement is working out very well and is well worth the extra bookkeeping which it may cause.

Ted MacKay, a G.I. trainee in the Hansen shop, flushes out a coil with a special acid bath cleaning rig devised by Pop.

Two of the men working with the firm are typical products of Pop's tutelage. Dobbs had started working for the dairy organization after only a 2-week training course at the Frigidaire factory, and he promptly proceeded to get himself all fouled up on one of the first really tough jobs that he was called upon to handle. In desperation, he sent an SOS to Pop who, as usual, came to the rescue and helped him unravel the problem.

Short had completed about two-thirds of a correspondence course in refrigeration when he came up against a problem that stopped him cold. He, too, came to Pop for help, and after they had worked that particular problem out Short offered to work with Pop without pay just for the experience he would receive. Pop took him up on this offer, and a couple of weeks later when the firm's

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DRIERS
• Finest Deluxe Quality
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shop man quit he gave Short the job on a regular basis.

The company now has two service trucks, only one of which is currently operating. The other, which had been in constant use from 1936 until the new truck was obtained this year, is now sadly in need of a complete overhauling. Pop personally built up the bodies on both of these trucks to meet his own service requirements.

Duties Are Divided

Here is the way the members of the firm split up their duties at the present time.

Dobbs and Ward both work on field service, Ward using his own car on domestic calls and Dobbs using the truck on commercial work.

Dorothy, as always, is doing all the bookkeeping, record keeping, and order taking, in addition to serving as service dispatcher most of the time. She's been at the business so long that her husband proudly declares that she can make most of the repairs over the telephone.

Pop himself devotes most of his time to sales work, but he still carries his tool box in his car and handles a few emergency calls if the need arises. He also takes most of the few night calls which are received, inasmuch as these calls come in on his home phone. The three men alternate on Sunday duty.

Sales Come Slowly

Pop has always done some commercial sales work, of the kind that comes naturally to a serviceman, but he has never pushed it intensively because up until now he never really had adequate space in which to display the equipment. Now that he can promote this end of his business more actively, he finds the competition pretty tough. "It looks to me," he laments, "like we got in on the ground floor—about two years too late!"

At the present time the company is handling Brunner, Servel, and Mills condensing units, Viking and Puffer-Hubbard cases, Victor and Revco freezers, and United walk-ins and bottle coolers. About 80% of the company's business still lies in service work, Pop estimates, but he hopes to build up the sales end until it reaches at least a 50-50 ratio.

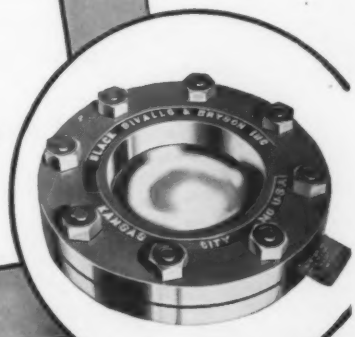
Pop has long been a prominent figure in local circles of the Refrigeration Service Engineers Society. He was active in organizing the local RSES chapter in 1941 and served as its first president. Since then he has held this office for a couple of more terms. He also attempted to organize a state RSES group, but this effort never got beyond the temporary stage, with Pop as temporary president.

Pop also was instrumental in the organizing of a local refrigeration contractors group the year before the National Association of Refrigeration Contractors was formed. He also served as first president of this local group, which later affiliated itself with NARC.

Dorothy has shared Pop's interest in the RSES. She was active in forming a local auxiliary group about a year after the regular chapter was organized, and has served that group in every official capacity at one time or another. For the last two or three years she also has been active in the national RSES auxiliary, and currently is serving as 2nd vice president of that organization.

The community of interest shared by Pop and Dorothy is no new devel-

PREVENT OVER-PRESSURE TROUBLE *in your refrigeration units*



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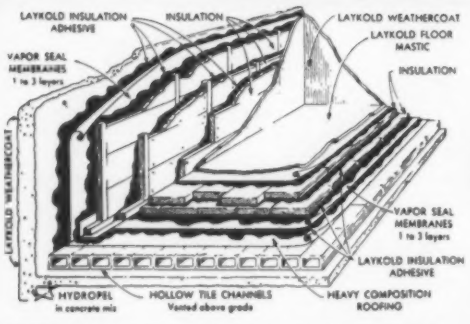

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opment. They have shared in each other's activities ever since the night they first met on a blind date during the first World War. Dorothy Braley was a New Bedford, Mass., girl, a typical New England Yankee, when Pop met her there while he was stationed at Fort Rodman.

Pop had enlisted in the army in June, 1918, and had been assigned to the 73rd Coast Artillery Regiment. After a very brief courtship with Dorothy he was shipped overseas, where he spent 4 months but never

Johnny, one of the family's two dachshunds, begs for a snack from his master. Pop's real pet, tho, is Johnny's daughter, Fannie.

saw any active service. By great good fortune he was shipped back to the States on the first transport to bring back regular troops, and so he was in this country by Christmas.

He immediately planned on visiting his fiancee, but the fickle fate which had been treating him so kindly now turned the other cheek.

Unable to obtain leave he decided to go A.W.O.L. in order to see Dorothy, but the taxi which he and a few of his buddies hired to make the trip broke down, and before he had another chance to effect a rendezvous he was shipped to Battle Creek, Mich., where he was discharged early in January. As a result, he didn't see Dorothy again until February, 1922, when he finally had saved up enough money to go back to New Bedford and marry her.

One of Pop's best stories about his army experiences concerns his enlistment. One day he was walking down the street in Flint when he chanced to

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A size and type for every water-cooling requirement.

Binks Type 2K-S spray filled induced draft cooling towers. Binks 2K-S series cooling towers are ideal for a wide range of commercial water-cooling applications within 150-645 GPM capacity, where use of nozzles is preferred to interior decking for water distribution and break-up. Simple in construction, these units are easy to assemble and erect in the field without skilled help or factory supervision. In 20 standard sizes.

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Binks type "K" heavy duty induced draft cooling towers. Widely used for large air conditioning, refrigeration and related installations where abundant circulating water is needed. In "spray filled" or "deck filled" types, depending on service, cooling range, design wet bulb and approach desired. Readily painted to harmonize with most buildings. Tower framing and casing are all-steel, prefabricated for easy assembly.

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Contains full information on capacities, sizes, weights, etc., together with tower numbers.

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36. Type 2K-S Spray Filled Cooling Towers
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39. Heavy Duty Cooling Towers

Please state how tower will be used, also capacity required.

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NOISE and VIBRATION

throughout ANY refrigerant system!

THE NEW PACKLESS VIBRATION ABSORBER

especially designed and manufactured for the specific needs of the air conditioning and refrigeration industries.

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meet an old buddy of his. In the course of conversation this chap told Pop that he had just enlisted the day before. "Why don't you come on down and enlist, too?" he asked Pop, "and then we'll be able to be together during our army service."

That sounded pretty good to Pop, and so the two buddies strolled down to the recruiting office side by side and his pal stood by while Pop signed up. But leave it to the army—the next time the two men saw each other was in Brest, France, where they were both waiting for a transport to bring them home from the war!

They Share Their Fun

Pop and Dorothy Hansen haven't become rich in the refrigeration business, but they do lead a comfortable life and they have a lot of fun. The 8-room house which they own is conveniently located just a couple of blocks from the Hansen shop, so they don't put many miles on their new Studebaker driving between the two.

It seems they've almost always had a pet of some kind around the house, and right now it's a couple of dachshunds, father and daughter, which answer to the name of Johnny and Fanny. Both Pop and Dorothy find a lot of enjoyment in these pedigreed pups.

Their principal means of entertainment, however, is bowling. It all came about when the two Hansen children taught their mother the fine art of kegling, some 4 or 5 years ago, and then Pop became interested just as a matter of course. Now they both bowl regularly.

Sponsor Bowling Team

The Hansen company sponsors a team in what is known around town as the "Refrigeration League." This league consists of 18 teams, all of which are sponsored by various refrigeration firms. Pop estimates that more than two-thirds of all the bowlers in this league are actively engaged in refrigeration work.

The firm also sponsors a team in another league, and Pop bowls on this team as well as the other. Of course in a way this comes under the heading of advertising for the company, for all members of the sponsored teams wear shirts embroidered with the company name.

Dorothy bowls on the RSES auxiliary team which competes in a 10-team ladies league in town. Last year this team tied for first place in the final standings.

When pinned right down—and that's really not intended as a pun!—Dot admits to an average of about 143, while Pop carried a 161 average at the end of last season's competition.

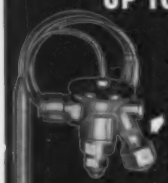
Both Children in Uniform

Both of the Hansen children—Shirley, 25, and Harold, 23—served in the armed forces during World War II.

Harold entered the army right after finishing high school and served a total of 27 months. He spent about 17 months of this period overseas as a Pfc with the 71st Infantry, and he saw his share of combat in France and Germany.

Shirley, not to be outdone, spent about 19 months as a lady Marine, ending up as a sergeant in charge of transportation arrangements at a railroad terminal in the nation's capitol.

Slash
VALVE INVENTORY COSTS
UP TO 900%



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2. *FLOAT COLLAPSE*
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Armstrong High Side Floats offer all the advantages of the original inverted bucket design — open at one end, the bucket cannot collapse and leakage is no problem. Non-condensables escape through a vent in the bucket and are discharged along with the liquid refrigerant—hence no gas binding. Swirling motion within float keeps dirt in suspension until it is discharged. Simple design and mass production economies mean you get a smaller sized float with greater capacity at lower cost.

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SEND for 4-page Bulletin No. 178 giving complete data, operating principles, hookup and prices on Armstrong Inverted Bucket High Side Floats.

Bulletin 178 gives full details. Ask for a copy.

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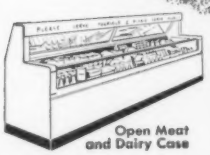
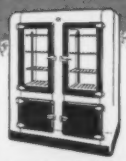


Open Meat and Dairy Case

Dry-Kold Beverage Cooler

Frozen Foods Display Case



Reach-In Refrigerator

Walk-In Cooler

Wall Dairy Box

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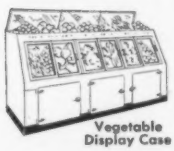
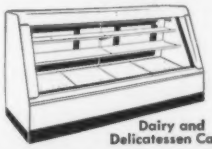
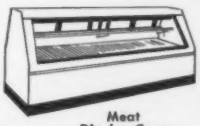


Vegetable Display Case



Dairy and Delicatessen Case



Meat Display Case

Tyler's Tops in commercial refrigeration equipment — with a complete, store-tested line of fast-selling, *welded-steel* refrigerators and display cases for groceries, markets, restaurants, hotels, institutions, bakeries, taverns, drug stores and florists.

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FOR FOOD REFRIGERATION

FOR ADDITIONAL INFORMATION, WRITE TYLER FIXTURE CORPORATION, NILES, MICHIGAN

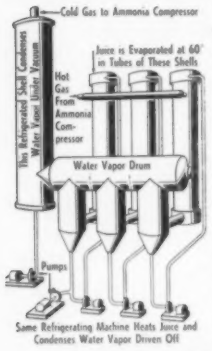
New Process Uses

FRICK Refrigeration

for both Boiling and Freezing Orange Juice!

The plant of the Florida Citrus Canners Co-operative, started in February at Lake Wales, is remarkable because it uses refrigeration instead of steam for concentrating fruit juices.

The cycle shown, on which Mojonnier Bros. Co. of Chicago have patent applications, utilizes both the heat and the cold supplied by a refrigerating machine—and with excellent economy.


Cold Gas to Ammonia Compressor
Juice is Evaporated at 60° in Tubes of These Shells
Hot Gas From Ammonia Compressor
Water Vapor Drum
Pumps
Same Refrigerating Machine Heats Juice and Condenses Water Vapor Driven Off

A separate Frick refrigerating system quick-freezes and stores the vacuum - packed juices at ten below zero. Food value and fresh flavor are both retained. Additional Frick machinery to enlarge the plant has recently been purchased.

Let us cooperate in solving your particular refrigerating problems.

DEPENDABLE REFRIGERATION SINCE 1882

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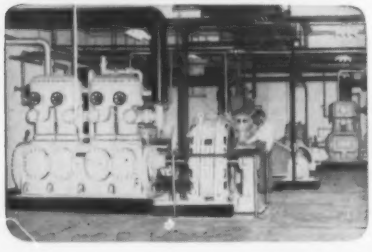
4 of 5 Frick Ammonia Compressors, Lake Wales



It was while there that she met an army corporal named Burton who is now her husband.

The Burtons, who live in Detroit, are momentarily expecting their first offspring, and Pop and Dorothy are just about as thrilled as prospective grandparents can get. "We're practically commuting between Flint and Detroit, these days," Dorothy laughs.

Harold also is spending a good deal of his time these days in Detroit, where he is a junior in electrical engineering at Wayne University. He is specializing in communication work, an interest which developed during his youth and was intensified by his army experience.

And Pop, while naturally he'd sort of like to have someone to take over the business eventually, realizes that every man has to choose his own path and make his own way. "If it's electrical engineering he wants," says Pop philosophically, "it's electrical engineering he'll get . . . and it looks pretty definite that there'll be no refrigeration work for him."

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MORE CALLS... BETTER SERVICE BIGGER PROFITS*

*with DEPENDABLE HINSDALE HIGH SPEED

27 PIECE SET REFRIGERATION SERVICE SET

- All tools drop forged of highest quality chrome alloy steel
- Special "Dura-Temp" heat treated for maximum strength
- Famous HINSDALE "Satin-Tone" Finish Makes Tools Rust-Proof
- Packed in heavy metal case. 8⅝" x 5¾" x 1⅜"

A complete refrigeration service kit containing "important" sockets needed by the refrigeration repairman to handle every repair job. All tools are precision built and engineered especially for ease in handling exacting refrigeration repair problems. Includes 19 HINSDALE super quality Square Drive and Packing Gland sockets—size 9/32" to ⅜". Available in either 9/32" or ¼" drive. Also short Box Wrenches, and handles. All packed in heavy metal case, 8⅝" x 5¾" x 1⅜". Order TODAY.

With Your Order, Ask for FREE Illustrated Descriptive Literature

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ABOUT PEOPLE . . .

Continued from page 38

and coordination of merchandising and distribution plans for its newly perfected, but as yet unmarketed, absorption-type household refrigerator.

●

Century Milstead has been appointed sales supervisor for the New York branch of Sunroc Co., water cooler manufacturer of Glen Riddle, Pa. Milstead will operate from his office in the Sunroc Building, 27-08 40th Ave., Long Island City, N. Y. A one-time All-American tackle from Yale, Milstead later entered professional football. He was a member of the first New York Giants football team in 1925.

●

Dan Mandery has been named to head the Platecoil Division of Kold-Hold Mfg. Co. Mandery, whose background includes many years experience in refrigeration, heating and air conditioning, covering both sales and service, has been associated with Frigidaire, Hussmann Refrigerator Co., and more recently, Universal Cooler.

●

Clyde L. Webb has been appointed southwestern territory representative for Betz Corp., manufacturer of "Filterpure" commercial coils. In this capacity he will cover the states of Texas, Oklahoma, Arkansas, Louisiana, and Mississippi, with headquarters in Ft. Worth, Tex. Webb comes to Betz Corp., with a background of over 20 years in the commercial refrigeration field, including a period of 10 years as sales engineer and field service supervisor for Kelvinator and a 3-year stretch as manager of Farr-Webb Co., Houston, Tex.

TERRA THERM . . .

Continued from page 34

the heat loss estimate and the coefficient of performance may be obtained from the manufacturer of the equipment, but care should be used to make sure that the auxiliaries such as fans and pumps are included.

The degree day figure is the sum of the daily average differences between inside and outside temperatures. The usual weather bureau figures are based on a temperature of 65 F inside, so if a higher temperature inside is needed, the difference between 65 and the temperature desired should be multiplied by the number of days in the heating season and added to the weather bureau figure.

The electric utility furnishing the service should be consulted to get the most favorable rate, for use with the chart.

For the cooling figure we find that Table II gives us a figure of .292 kwh per M cu.ft. per hour, so we follow the dotted line on Figure 3 from the 12 M cu.ft. to .292, then up to the 750 hours use line, now across to the rate per kwh line, $.015, and down to the answer of $39.50. This figure gives the cost for the unit including necessary humidification and fan circulation.

Thus we find that our sample home of 12,000 cu.ft. will cost $135 plus $39.50, or a total of $174.50 for a complete year of atmospheric comfort.

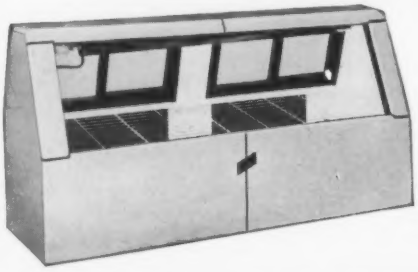
The Terra Therm unit had its origin in the heat pump system which I designed and installed in my own home in February, 1944. Since materials and equipment were difficult to obtain at that time I took what was available and made the best of it. The completed system, when ready for its initial test, consisted of a 3-hp motor and compressor, several hundred feet of ¾-inch tubing buried in my back yard, two small condensers, a ½-hp blower, and the necessary valves and accessories.

In laying the ground coil I dug a trench 6 feet deep and 50 feet long in which I buried 100 feet of tubing at a depth of 6 feet, another hundred at 5 feet, and a like amount at 4 and 3-foot levels. Thus I had a total of 400

TIME PROTECTED
LINGLE REFRIGERATION EQUIPMENT

The New Lingle Meat Display Case

THESE EXCLUSIVE LINGLE FEATURES



Design for Display
Cold Control Top Coil
Rigid Insulation
Low Initial Cost
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Available in 6, 8, 10, and 12' double duty models.

Lingle Walk-in Refrigerators, Dry Beverage Coolers, Meat Display Cases, Cold Storage Doors and Sectional Reach-in Refrigerators. See your Wholesale Jobber in your territory or write to the Kansas City office for complete sales information.

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95th & Troost, Box 7111 Country Club Station, Kansas City 2, Mo.

PLEASE THOSE GOOD CUSTOMERS WITH THIS

JIFFY START EMERGENCY CAPACITOR

• Refrigerator stopped . . . food spoiling . . . no replacement capacitor available within hours or even days . . . owner hopping mad?

• That's easily handled. Just take an AEROVOX EMERGENCY CAPACITOR out of your bag. Plug in total capacity required. (If in doubt, use Capacitor Selector which tells you how much.) Clip in place of burnt-out motor-starting capacitor. Presto! Refrigerator runs again. When you get around to it, install permanent replacement. • Meanwhile, you've cashed in by rendering real service. Customer is delighted. You've got another booster.

• Ask your parts supplier for Aerovox Emergency Capacitors. Keep a few of them on hand. Also ask about the Capacitor Selector. They'll pay real dividends!

AEROVOX capacitors

FOR RADIO-ELECTRONIC AND INDUSTRIAL APPLICATIONS

AEROVOX CORP., NEW BEDFORD, MASS., U.S.A.
Export: 13 E. 40th St., New York 16, N.Y. • Cable: 'ARLAB'
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The Premier
SELF ALIGNING VALVE GRINDING KIT

Makes it easy to grind, finish and test recessed or flush valve seats (piston or flapper jobs). Fast. No more tiresome hand lapping. Saves buying new parts.

"Couldn't Get Along Without It"
"Have used your kit for three months and do not see how I got along without it before. Saves me money and time waiting for replacement parts."
Appliance Service Co.
Greensburg, Pa.

SEE THIS REVOLUTIONARY NEW TOOL AT YOUR JOBBERS

THE PREMIER CO.
891 Park Ave. Baltimore 1, Md.

feet of this ¾-inch copper tubing. Tied into this circuit was another 100-foot coil previously used for a heat pump water heating system.

In the winter these earth coils act as an evaporator, while the two-part condenser in the basement transfers the heat to the air circulated through the hot air ducts to the registers in the rooms and thence back through the cold air ducts to the condenser, where it again picks up another load of heat.

The blower provides circulation which makes possible 6.7 changes of air per hour in the home, thus making it possible to use the air at about 110 F at the registers.

In the meantime, the compressor transfers the refrigerant laden with heat from the earth coils, increases the temperature by compression, and forces the hot gas (Freon-22) into the condenser coils where the cooler air circulating over the pipes absorbs some of the heat and changes the refrigerant to a liquid. Then the liquid refrigerant is again sent out through the expansion valves into the earth coils where it picks up another load of heat.

This heat pump system, diagrammed in Figure 4, has been used to heat my home for the past three complete heating seasons, and has maintained an average temperature of 74 F, even when outside temperature has dropped to –10 F. Due to various conditions the system has not been used to cool the home continuously during the summertime, but it has been used for this purpose sufficiently to determine that the requirements on the cooling cycle are so much less than on the heating cycle that there is no question of adequate cooling capacity.

"My, my—I had no idea that this air conditioning would be so simple!"

Complete instrumentation of this system has made it possible to obtain all the performance data which was needed in order to develop the present Terra Therm unit. This Terra Therm heat pump is basically the same as the original system which I designed and installed in my own home, the only difference being that all elements of the system (with the exception of the ground coil, of course) have been gathered into a single compact cabinet and that certain modifications have been effected in order to make the system more adaptable to production line manufacturing.

FOR QUIET PERFORMANCE

on your next job choose a

MILLS

a condensing unit for every installation

Mills Industries, Incorporated • 4100 Fullerton Avenue • Chicago 39, Illinois

OPENS NEW STORE

Wholesale Distributors, Inc., Jamaica, Long Island, refrigeration supplies wholesaling firm operated by Murray Bergman, has opened a new store at 698 10th Ave., New York City. Manager of this new outlet will be Leonard Bergman, son of the owner.

STEAM COILS
THAT STAND UP

BUSH Standard Steam Heating Coils are available in five standard finned heights and variable finned lengths with casings to match the corresponding direct expansion coils. Cores are fabricated of high-quality, non-ferrous materials. Steel and aluminum casings are protected with zinc or lead coatings . . . plus a priming coat for additional protection. Carefully tested, conservatively rated, non-freeze available, built to give long, trouble-free service and top efficiency of operation.

BUSH MANUFACTURING COMPANY
WEST HARTFORD 10, CONNECTICUT

Bush
HEAT TRANSFER PRODUCTS · W. HARTFORD, CONN

YOU hear it from all concerned—service engineers, dealers, distributors—*Texaco Capella Oils* assure trouble-free compressor operation that builds good-will and repeat sales.

When *Texaco Capella Oil* goes into a compressor, trouble with gumming and sludging goes out. And there's no reaction with refrigerants, for *Texaco Capella Oils* are stable and moisture-free . . . and have very low pour tests.

Leading compressor manufacturers have put their O.K. on *Texaco Capella Oils* . . . and you can get them in the right viscosities for every type and size of compressor . . . in sealed 1-qt., 1-gal. and 5-gal. cans.

Let *Texaco Capella Oils* build more business for you. The Texas Company, 135 East 42nd Street, New York 17, N. Y.

FREE LUBRICATION GUIDE

Latest edition lists make and type of compressor and refrigerant in 64 Electric Refrigerating Units and 39 Air Conditioning Units. Shows recommended grade of *Texaco Capella Oil* for each. Use guide as wall chart or bind into service manual.

TEXACO Capella Oils

FOR ALL AIR CONDITIONING AND REFRIGERATING EQUIPMENT

TEXACO

Tune in...TEXACO STAR THEATRE presents MILTON BERLE every Wednesday night. METROPOLITAN OPERA broadcasts every Saturday afternoon.

THE PRACTICAL Refrigeration Applications MANUAL ... by Harold Smith

THE Practical Refrigeration Applications Manual, which will appear in this space each month as the successor to The Practical Refrigeration Engineering Manual, is intended to answer the needs of those refrigeration and air conditioning men who may from time to time encounter field engineering problems too tough for them to handle. We urge all such readers to submit these problems to us. Each letter of inquiry will be answered personally by the author of this series, who will give the writer the benefit of his long and varied experience by providing an analysis of each problem submitted and by offering his recommendations for its solution. Those problems which appear to have the widest reader interest will be published in these columns from month to month. All questions or problems should be clearly and completely stated, with all facts, figures, and additional information needed for an adequate analysis of the situation. Address your problems to: The Refrigeration Industry, Manual Dept., 1240 Ontario St., Cleveland 13, Ohio.

PROBLEM

"WE have been called to figure refrigeration equipment for a small packing plant outside of town.

"These people handle from 10 to 15 cattle at a time, some days 30 to 40 hogs and 10 to 20 lambs. They have a chill room, an aging and storage cooler, and also a display case for the display and sale of some cuts of meat and specialties at retail. Most of the meat is delivered to country meat markets which retail the meat.

"The plant is cooled at the present time by an ammonia machine. The coolers have bare pipe coils on the walls. Bare pipe coils are also used in the case. The ammonia machine is in bad shape and this company wants new Freon equipment.

"The chill room is about 6 feet wide, 10 feet long, and 10 feet high, and is built on the end of the storage cooler. There is an insulated partition and door between the two coolers; also meat tracks run from the killing floor through the chill room into the storage cooler.

"All rooms have a concrete floor supposed to be insulated with 4 inches of cork board. The walls have 4 inches of cork board, the partition has 3 inches of cork board, and the ceiling 3 inches of cork board.

"The storage cooler is 10 feet wide, 16 feet long, and 10 feet high. The case is a 2-glass single duty case measuring 10 feet long, with outside lighting.

"Temperatures wanted in the chill room are 40-42 F, in the storage cooler 34 to 36 F, and in the display case 38-40 F. Would you recommend a single condensing unit for this job?

"Also, would you use blower coils in the two cooling rooms? They have cold well water at this plant and say they always have plenty of water even when things are dry.

"Please advise size and type machine needed; also proper coils. I want to compare your recommendations with the figures I have made on this job."

SOLUTION

THE problem you have presented seems quite clear so we will make the recommendations based on the information furnished.

You said nothing about temperatures outside the coolers or where the coolers are located but we assume the temperatures are normal for your part of the country, probably some days running into 90 F or higher temperatures during the summer. We will accordingly use as our basis of figuring an outside temperature of 94 F, and use the desired inside temperatures and the maximum daily products load of slaughtered animals as you outlined in your letter.

NORMAL LOAD ASSUMED

We, of course, assume that three to four days slaughter is kept in the storage cooler and the deliveries each day would about equal the daily slaughter. The service load we assume would consist of ordinary loading with fresh cooled meat each day, unloading an equal amount of meat for delivery and some hours of labor in the cooler for trimming, cutting, and other processing.

I think our figures should include use of one condensing unit, providing a similar installation to the ammonia system being replaced. However, we will also include recommendations for the use of three machines as optional equipment, one to operate each unit—the chill room, the cooler, and the display case.

COIL RECOMMENDATIONS MADE

Our recommendations for coils would be that blower coils be used in the chill room. We would suggest that overhead fin coils with louvered pans be used in the cooler, provided they can be installed without interfering with the track.

You may, of course, use blower coils in the cooler if you prefer. However, if you do use blower coils be sure you use units with plenty of capacity so that they are capable of handling the load at a close temperature differential, thus preventing frosting up and lowering the relative humidity.

HIGH HUMIDITY REQUIRED

It is quite essential for a high humidity condition to exist in the cooler to keep the meat stored in good condition and to eliminate surface discoloration and loss of weight through shrinkage.

In the display case we would recommend use of an overhead fin coil and pan with a bare pipe coil on the bottom if the case is built to handle this type of coil.

Our load requirement estimates, based on 18-hour operation in a 24-hour period, are as follows:

1. Chill room—27,955 Btu per hr.
2. Cooler—12,600 Btu per hr.
3. Case—4,322 Btu per hr.

With the condensing unit set to operate on the storage cooler at inside temperatures of from 34 to 36 F, an average suction temperature of 22

degree gas should be satisfactory. This gives a temperature difference between cooler and refrigerant temperature of 13 degrees, with a 19-degree differential in the chill room and a 17-degree differential in the case.

If blower coils are to be used in the storage cooler, suction gas temperature should average 25 F with a temperature differential of 10 degrees in the cooler, 16 degrees in the chill room, and 14 degrees in the case.

You undoubtedly know that as coil selections are made on closer differentials, more surface and Btu efficiency is required to handle the refrigeration loads. We have arrived at the maximum refrigeration load, based on 94 F outside air, as shown in the following table:

	Storage Cooler	Chill Room	Case
Heat Leak	3,717	1,749	2,420
Service Load	2,940	1,980	352
Products Load	2,462	17,237	470
Total hourly load in Btu for 24-hour operation	9,119	20,966	3,242
Total hourly load in Btu for 18-hour operation	12,160	27,955	4,322

The combined hourly load in Btu for 18-hour operation—44,437

With these figures showing load requirements for each individual unit, together with the total load figures, we can select the proper condensing units and coils.

If a single condensing unit using Freon gas were to be used we would be able to determine, by referring to a manufacturers condensing unit capacity chart using +25 degrees suction pressure, that a 5-hp. water-cooled condensing unit would be needed. This unit, with a capacity of around 53,000 Btu, should handle this job with a maximum of from 13 to 14 hours operation in a 24-hour period under peak load.

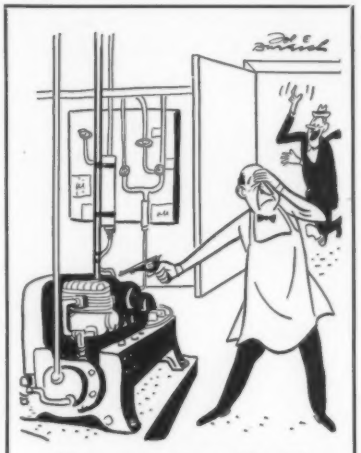
5-HP UNIT NEEDED

A 3-hp. water-cooled unit might take care of the job under average conditions, but might fall short under maximum load and weather conditions. Therefore the 5-hp. unit is definitely recommended. Probable selling price with single phase motor would be around $1200.

Should separate condensing units be used on each operation, a 2-hp water-cooled unit would be needed on the chill room, a 1½-hp air-cooled unit on the storage cooler, and a 1/3-hp air-cooled unit on the display case.

The separate units would increase the initial cost of condensing unit equipment $500 to $600. Individual units, however, would reduce the adjustment and control problem, simplify the installation of the equipment, use less water and electricity, and also protect the operator from complete loss of refrigeration through condensing unit failure such as might occur in an installation where only one unit is employed.

Using three individual units the maximum operations would run approximately 19 hours for the 1/3-hp unit, 15 hours for the 1½-hp unit, and 18 hours for the 2-hp unit under peak load. Under more normal conditions the running time on all three units should be materially reduced.



"No, no—not yet, Mr. Gillingwater! Our service men can fix almost anything!"

Use of individual units would also enable the equipment to be operated by low pressure control adjustments on each unit, eliminating use of more elaborate controls.

If a single condensing unit were to be used, we would recommend a single liquid and suction line running to the coils in the three fixtures to be refrigerated, with branch-off lines from the main lines to the coils in each unit.

Each branch-off line should be controlled by a hand shut-off valve for future service work and for individual control of each fixture. Solenoid valves should be placed in each liquid branch-off line between the hand control valve and the expansion valves in the cooler and chill rooms, these solenoids to be operated from individual room thermostats installed in the branch suction line in the storage cooler between the coils and the hand control valves.

The low side coil equipment recommended would be as follows:

Chill room—one large forced draft convection unit with a capacity of 28,000 Btu at 16 degrees temperature differential, or two smaller units each with a 14,000 Btu capacity at 16 degrees t.d. In either case, continuous fan operation should be provided.

Storage cooler—overhead gravity fin coils and pans with capacity of 12,600 Btu at 10 degrees t.d. If overhead coils cannot be installed, use side wall type fin coils with bottom drip pans having the same capacity. Should forced draft convection units be preferred, use either two units, each having a capacity 6,400 Btu at 10 degrees t.d., or 3 units, each with a capacity of 4,200 Btu at 10 degrees t.d. These units should also operate with continuous fan operation but must be adjusted for defrosting on-off cycles. If adequate capacity is provided in both condensing units and coils no difficulty should be experienced from these defrosting requirements.

DISPLAY CASE REQUIREMENTS

In the display case we would recommend an overhead case type fin coil with pan, together with a bare pipe coil on the bottom of the case on which meat platters are to be set. One expansion valve should handle these two coils, with the expansion valve connected to the bare pipe coil, and the bare pipe outlet connected to the inlet of the overhead fin coil with the suction from the fin coil run so that the thermal bulb from the expansion valve can be attached to this suction line inside the case.

We hope our outline and recommendations for this job will be helpful to you in securing this business. We are confident our load values and recomendations are adequate, based on the information and load requirements you have given us. If we can help you further with this problem please call on us.

WATER HAZARD

The last word in comfort for competitive golfers, a Kelvinator electric water cooler to help contestants keep cool under the pressure of tournament play, greeted participants in last summer's All-American and World's Championship golf tournaments at Chicago's Tam O'Shanter course. The cooler was located on the 15th fairway, 175 yards off the tee, and provided a welcome oasis for golfers and spectators alike. Here contestant Fred Haas, Jr., pauses to refresh himself as his caddy stands by.

There is no finer refrigeration tube than

REVERE DRYSEAL!

● Every feature you want in refrigeration tube, you get in Revere Dryseal:

Uniformly soft tube that is easy to bend and flare.

A dependable end seal that permanently protects the clean bone dry interior and will pass through any opening large enough for the tube itself.

New, economical dimensional standards.

A package that protects the tube, keeps it bright and clean, and is readily identifiable in your stock.

You are sure of fine quality in every length of copper refrigeration tube you buy when you ask by name for REVERE DRYSEAL. This tube comes in sizes from ⅛" to ¾" O. D., and is packed two 50-foot coils to a package.

Revere Dryseal dehydrated refrigeration tube is handled by leading distributors in all parts of the country.

REVERE

COPPER AND BRASS INCORPORATED

Founded by Paul Revere in 1801

230 Park Avenue, New York 17, New York

Mills: Baltimore, Md.; Chicago, Ill.; Detroit, Mich.; New Bedford, Mass.; Rome, N. Y.—Sales Offices in Principal Cities, Distributors Everywhere.

CONTRACTORS
News • Activities • Plans

While *The Refrigeration Industry* is *not* the official publication of the National Association of Refrigeration Contractors, the Editors assign this space each month to the association. The information below is furnished, for the most part, by the offices of the association and its local affiliates.

Better Business Bureau Defines Air Conditioning

In a recent bulletin to its members the National Better Business Bureau has defined air conditioning as follows:

"The minimum functions of air conditioning are the control of temperature, humidity, and movement of air within an enclosed space."

"Just what is air conditioning?" the bulletin asks. "The constantly expanding use of air conditioning in homes and in commercial and industrial establishments makes this an important definition.

"Authorities on the subject(architects, heating and ventilating engineers, and manufacturers) agree, and the Federal Trade Commission has ruled, that air conditioning is the control, by a mechanical device, of the temperature, humidity, and circulation of air within a structure.

"The non-performance of any one of these three basic functions takes equipment out of the air conditioning class, according to numerous rulings of the Federal Trade Commission. (See FTC Stipulations 1467, 1772, 1883, 2450 and Docket 3974)

"Air conditioning equipment for summer comfort cools, de-humidifies, and circulates the air.

"Winter air conditioning equipment warms, humidifies, and circulates the air.

"Year-round air conditioning equipment combines the functions of both summer and winter air conditioning equipment.

"Air conditioning equipment *may* do more than control the temperature, humidity and movement of air. It may, for example, filter the air to remove dust, bacteria, and pollens. However, the three functions of controlling temperature, humidity, and movement are the functions recognized by trade and government authorities as *minimum functions* of air conditioning equipment.

"The Bureau recommends that if equipment is advertised as providing 'air conditioning' or as being an 'air conditioner,' it offer as a minimum, the control of the temperature, humidity and movement of air within an enclosed space.

"Air coolers, air purifiers, air humidifiers and dehumidifiers, and air circulators such as fans, should be described as such, and *not* as air conditioning units."

VENTILATION CALCULATOR AVAILABLE FROM GOV'T

A simple, rapid device for testing and balancing ventilating, heating and air conditioning systems, which was developed by the Navy, is now available to the general public from the Office of Technical Services, Department of Commerce, according to an announcement by this government agency.

The ventilation testing calculator, a sturdy cardboard device, and full instructions for its use, were developed during the war by Naval engineers primarily for ship construction and alteration. Because of the similarity of shipboard and land ventilating problems, however, the calculator will doubtlessly have wide usefulness for regular building purposes.

The calculator has several scales showing desirable ventilation standards for various sized areas, and methods of achieving them through orifice size and air velocity. Other scales can be used for computation purposes.

According to the instructions, careful original design of a ventilating system will minimize the need for subsequent readjustment or balancing, but will seldom eliminate it. Variations in quality of workmanship and in assumptions made dur-

NEW JERSEY CONTRACTORS JOIN NATIONAL GROUP

The Refrigeration Contractors Association of New Jersey, Inc., is the 27th local or regional organization to align itself with the National Association of Refrigeration Contractors, thus supporting NARC's efforts to advance the interests of refrigeration contractors from coast to coast. Members of this organization in the photo above are: Seated, left to right—Kurt Bader, Bader & Miller Sales & Service; R. C. Holder, Holder Refrigeration Co., sgt.-at-arms; C. W. Ford, Ford Bros., vice-president; E. C. Newton, Engineering & Refrigeration, president; A. D. Dietl, Dietl & Kraft, secretary-treasurer; F. R. Bader, Bader Sales & Service, Inc., chairman; J. V. Jackson, Jackson Sales & Service. Standing, left to right—F. Nuckol, Richardson & Richardson; E. Geiger, Geiger Refrigeration, director; J. Schiller, and S. J. Siegel, Jay Refrigeration Co.; H. Rohloff, Harold Refrigeration Co., director; C. A. Taylor, C. A. Taylor, director; G. Feaster, Bader Sales & Service, Inc.; M. Dee Petillo, Tony Petillo Refrigeration Co.; M. Lechnich, Chase & Nolan Refrigeration Co.

ing design make it necessary to check actual operation before the system is placed in regular use. Procedures for preparing necessary tests are described.

Included in the instructions are formulas for computing air volume and velocity, use of velometers and anemometers, and methods of taking observations.

This ventilation testing calculator, including 10 pages of illustrated instructions, is priced at $1.50. Orders should be addressed to the Office of Technical Services, Department of Commerce, Washington 25, D. C., accompanied by check or money order payable to the Treasurer of the United States.

CIVIC GROUP URGED TO BACK HIGH SCHOOL COOLING

The Civic Improvement Association of Key West, Fla., has been urged by the city's school board to back a program for air conditioning the auditorium of the Key West high school. The school board announced that it would double any amount which various civic organizations might contribute for this purpose.

HARTFORD DISTRIBUTOR

The Wood-Alexander Co. of Hartford, Conn., has been appointed distributor for Coolerator refrigerators and freezers in the Hartford area. Garnet Wood and Henry W. Alexander, president and vice president respectively of the firm, have been actively engaged in the promotion and sales of electrical appliances for 22 years in the Hartford area.

INCOME TAX AID

In an effort to simplify the complicated procedure of filing your income tax, the Bureau of Internal Revenue has just issued a new instruction pamphlet to help taxpayers understand in simple language just what they can expect from credits, exemptions, deductions, etc.

The booklet contains a complete list of tax regulations and will enable you to safely make out your return without going through the previous complex methods.

Taxpayers are urged to closely watch the changes in this new tax procedure, especially those dealing with separate and joint returns and split income benefits, as some of them are real money-savers.

A copy of this new instruction bulletin will be mailed to you along with your income tax forms. Look for it!

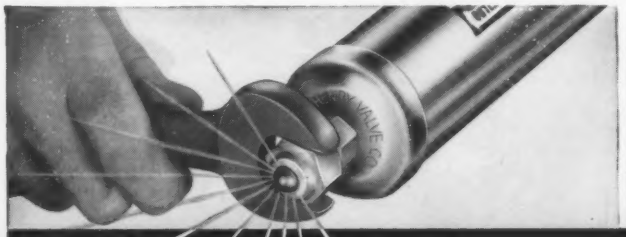
QUALITY that SELLS!

in all SUB-ZERO FREEZERS

Attractive, modern design, dependable operation, and a complete line to select from are the reasons Sub-Zero Freezers bring sales and profits to your sale floor. Both straight freezers and two temperature models in various capacities provide a wide assortment of cabinets. Illustrated is a popular favorite — Model 16V — an upright freezer with 16 cubic feet capacity, white baked enamel finish and a heavy duty ½ H.P. Compressor. Information on the complete Sub-Zero line is available upon request.

Write For Dealer Information

SUB-ZERO FREEZER CO., INC.
MADISON, WISCONSIN



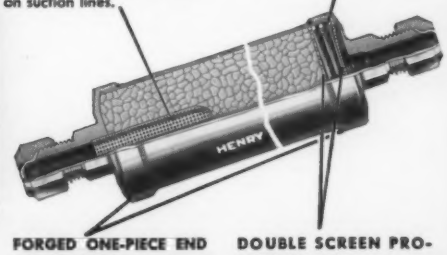
ON HENRY DRIERS THIS *Hiss* MEANS OK!

The Hiss a Henry Drier emits when its seal cap is loosened is the escaping rush of dehydrated air sealed inside. This hiss assures you your Henry Drier does not leak and is in factory-dry condition. It means you are installing a 100% efficient, leak-proof drier on your job. It guarantees removal of all moisture from the refrigerant with practically no pressure drop. It means you can be completely confident in the drier you install.

ONLY HENRY DRIERS GIVE YOU ALL THESE FEATURES

PATENTED DISPERSION TUBE... prevents channeling, insures maximum utilization of Silica Gel to remove moisture and impurities. Low pressure drop permits the use of driers on suction lines.

SPRING COMPRESSED DEHYDRANT... exclusive Henry feature, keeps Silica Gel tightly packed, eliminates powdering or clogging of screens.



FORGED ONE-PIECE END CAP-FITTINGS... machined from one forging. Withstands all installation strains. Leak proof.

DOUBLE SCREEN PROTECTION... filters out particles as small as .003" diameter. Stands any system pressure.

Sold by leading wholesalers

HENRY VALVE CO. CONTROLLING FLOW

Control Devices, Valves, Driers, Strainers and Accessories for Refrigeration and Air Conditioning and Industrial Applications.

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3260 W. Grand Ave., Chicago 51, Ill. • Cable: HEVALCO Chicago

Over the COUNTER

Watch Your Profit Margins!

WITH the present high prices confronting the conhumer on all sides, he naturally resists as long as possible the purchase of new equipment or the replacement of parts of the old equipment. However, as the costs for service and repairs have increased only in proportion to other things, Mr. Consumer must meet the high cost of refrigeration one way or another.

More work and more effort are required to sell equipment today, but in many instances the equipment can be moved without unnecessary sacrifice in profits.

The manufacturer, wholesaler, and retailer must all remain price conscious today as never before. Prices continue to increase but in relatively few instances are there any increases in profit margins. Because of these facts, together with the additional burden of the ever-increasing costs of doing business, every effort possible should be directed to realize as much profit as possible on every sale made.

It is much easier to close a sale quickly by offering a special concession or discount. However, with shrinking profit margins confronting business people on every hand, this easy way to a sale may also prove to be an early way to bankruptcy and the loss of the business.

This is not an easy road to travel. Many will perhaps fall by the wayside as they go along. Others, however, through the exercise of determination, good judgment, and sound management policies, will weather the storm in spite of the present obstacles.

Every business man who has worked to establish himself in business possesses the ability to meet this situation and will do so if he uses good judgment and holds steadfastly to a firm, sound, business program.

It is not difficult to appreciate a natural urge to meet competition which goes after business on a cut price basis. There may, in fact, be instances when it is next to impossible to refuse to meet this disastrous situation. Such is business. Remember, however, that when you go after cut price business with cut prices you may be starting to knock the props out from under your financial structure.

If you cost each sale you make, the telltale signs quickly become evident. If, on the other hand, you operate with a limited record and bookkeeping system, you could readily find yourself deep in hot water before you become aware of the fact.

Profitable, sound business activities have always been necessary for survival in the American system of free enterprise. These policies are needed today fully as much or more than for the last fifteen years.

Take time out now to analyze your present business picture. Set up sound policies for future operations during these trying times. Stick to your program once it has been set up. Go out and work a little harder than has been necessary for the last few years.

If you do these things the results will prove to be both gratifying and profitable.

BUY FROM YOUR REFRIGERATION WHOLESALER

REWA members offer you

7. Stockrooms containing hundreds of items and maintained at a large investment.
8. Adequate, up to the minute displays of merchandise which can be inspected at any time.
9. A business connection that does not compete with the trade by contracting for installation or service.
10. Sound, intelligent engineering advice which is always available when needed.
11. A business reputation backed by an organization of 13 years' operation according to approved business policies.
12. Every assistance to enable you to expand your business through prompt, efficient service.

10

You may always feel free to consult a REWA member on technical or other problems which may arise in the course of your business dealings. Of course there is no charge and his close personal contact with the trade puts him in a position to assist customers in many different ways.

180 MEMBERS MAINTAINING OVER 300 CONVENIENT OUTLETS

BUY FROM A REWA MEMBER

H. S. McCloud, Executive Secretary — 920 East McMillan St., Cincinnati 6, Ohio

Let H.V.E. save your Refrigeration Dollars

HERE'S WHY H. V. E.—high volumetric efficiency —in a compressor means *low* refrigeration costs:

In a compressor with H. V. E., every stroke of the piston pushes the greatest possible amount of refrigerant gas out of the cylinder, through the discharge valves, into the refrigeration system.

If the compressor *doesn't* do just that, gas left behind the discharge valves re-expands—and the compressor is idling part of the time. Your customer is paying for energy he's not putting to work!

You can *end* this waste, cut down costs, with a G-E compressor. *Every* G-E compressor is built throughout for High Volumetric Efficiency. Accurate piston-cylinder fit, assuring low blow-by . . . minimum clearance between valve plate and piston . . . thin plate with easy-lift, wide-opening valves . . . these features all add up to the most refrigeration for your customer's power dollar.

Yes, for H. V. E., just see G. E.! Ask your General Electric district representative for full information—he's ready to work with you at all times.

General Electric Company, Air Conditioning Department, Section R81412, Bloomfield, New Jersey.

GENERAL ELECTRIC

MAKE A GENERAL ELECTRIC CONDENSING UNIT
THE HEART OF YOUR REFRIGERATION SYSTEM

Ranco CONTROLS

FOR HOUSEHOLD REFRIGERATION

CHECK with Ranco FIRST

- Specialists In Refrigeration
- More Ranco Controls In Use
- Less Stock To Carry
- Greater Customer Satisfaction
- Dependability
- More Profit For You

DEPENDABLE

ECONOMICAL

For the dependable, trouble-free service you need and want for your household refrigeration products, check first with Ranco. The complete Ranco line of Refrigeration Controls includes a type and model designed and built to meet your specific requirements.

From raw materials to finished product, Ranco's experienced refrigeration specialists control every step in the production of these precision-built controls. Quality materials, selected and tested, are carefully machined and assembled by skilled craftsmen . . . rigid inspections and tests insure accurate, positive operation under the most exacting conditions. Over 15,000,000 Ranco Controls now in use attest the satisfactory, economical performance you can expect when you check with Ranco first.

Ranco Inc.
COLUMBUS 1, OHIO

World's Largest Manufacturers of REFRIGERATION CONTROLS

Here's how

Edited by
Warren W. Farr

This Dealer Gets His Share Of Church Contributions

Many churches need air conditioning but, unfortunately, many of them find it difficult to raise the funds to cover this added expenditure.

To solve this dilemna, one heads-up air conditioning contractor of our acquaintance has had special contribution envelopes printed for use in churches as a means of attracting specific donations for this purpose. As the money is donated by the congregation it is held in escrow by the dealer.

When sufficient money has been collected to pay for one-half of the required air conditioning equipment, the system is installed. The balance of the cost is carried on notes by the dealer.

WANT TO EARN $5?

You don't have to be a writer or a literary genius! Just jot down some of the shortcuts you've developed in your maintenance or installation work and send them to HERE'S HOW EDITOR, REFRIGERATION INDUSTRY. Your $5 will be paid promptly when your maintenance tip is published in the magazine. Let's hear from you!

Story of a Live Wire

Ingenuity and enterprise rate high among the distinguishing characteristics of the successful dealer. Here is an incident which highlights the way in which one large metropolitan dealer put these attributes to good use.

Confronted with the fact that it would cost $900 to supply power to a 3-hp unit which had been ordered by a customer who resided on the fifth floor of an exclusive apartment house, this dealer contrived to reduce this cost and make buying more attractive to other prospects in the apartment house by selling the owner of the building on the idea of sharing with him the cost of bringing a large power line into the building and providing outlets on the various floors.

In return for his share of the expenditure, the dealer retained the exclusive right to the power line for a period of three years.

It strikes us that competition will have a hard time meeting this dealer's installed prices in that apartment building!

Tell Your Story

The value of using your business history in your advertising was pointed out recently by a promotional consultant whose fees, we are told, often run to four figures per sitting.

"There is nothing customers like better than the feeling that they are dealing with someone of long standing and high regard in the community. Hammer home the age and traditions of your business time and again," he says.

One dealer we know puts this advice to good use by playing up the background and tradition of his business in every way he can. Currently he is helping his home county

I do it this way...

I WAS in a tough spot when I developed this emergency method of repairing a receiver leak without shutting down the system and removing the refrigerant charge.

The receiver of the system on which I was working had sprung a leak. It was essential that the job be kept in operation, but there was no replacement receiver available. It would have been impossible to weld the leaking receiver without first removing the charge, which in this case would have taken several hours, as the system was a large job.

Faced with this dilemma I took a small piece of ⅝-inch tubing and placed it over the leak, welding it to the receiver. I then flared the other end of this piece of tubing and placed a ⅝-inch plug in it. This method satisfactorily stopped the leak until a permanent repair could be made.

E. L. Minch, Portsmouth, Ohio

I do it this way...

HERE is an idea that has proved very useful and trouble-free in continuity testing and all-around motor testing on a shop bench.

I take a piece of ¼-inch tubing about 6 inches long and solder to it a wire of sufficient length to reach any place on the bench where I may test or run a motor. Then I cover all but about an inch of this with good rubber tape so that there is no danger of shorting.

The exposed end of the tubing is then enlarged with anything that is slightly smaller than a ¼-inch tubing swedge. The two of these when run through a two-fuse block may be used for continuity with a light globe in one fuse receptacle or running with a fuse. The open end can be easily placed over the motor terminals, and will rest on them without grounding to the frame.

H. J. Huber, Bothell, Wash.

MINI-VOLT

Instantly read voltages right off dial. 65 to 660 v. AC. Also DC. Virtually burnout-proof. Guaranteed for 10,000 hours' operation. Plastic case. 12" flexible test leads. *And only $2.75 list!*

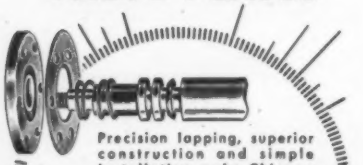
- **Not only distinguishes between 110, 220 etc. volts, but measures line voltage close enough to show up to 2 or 4 volt drop between meter and load terminals on 110 v. line.**
- **No refrigeration serviceman need now be without definite knowledge of whether faulty operation of motors, magnetic valves, etc. is due to improper terminal voltage.**
- **Checks for blown fuses, accidental grounds, circuit continuity. Useful for electrical troubleshooting in general.**
- **Warns of "live" wires and equipment, as protective measure.**

It's a "must." Saves time, money, life and limb! Order from your wholesaler.

INDUSTRIAL DEVICES, INC., EDGEWATER 11, N.J.

PLAYSAFE

USE CHICAGO SEALS *and* VALVE PLATES



Precision lapping, superior construction and simple installation make Chicago seals ideal for replacement.

Only Chicago valve plates have replaceable seats.

PERFECT BALANCE

Chicago Seals

CHICAGO SEAL CO.

332 S. HOYNE AVE. CHICAGO 12, ILL.

celebrate its 75th jubilee by joining in with a store-wide refrigeration and appliance show.

A special souvenir booklet gives a few sidelights in the history of the store, side by side with a listing of important dates in the record of the county. Among the items included in this chronicle of the company's progress are the date that the store opened and the years in which it commenced the sale of the various types of products which it now handles.

Why not tell *your* customers the story of *your* business?

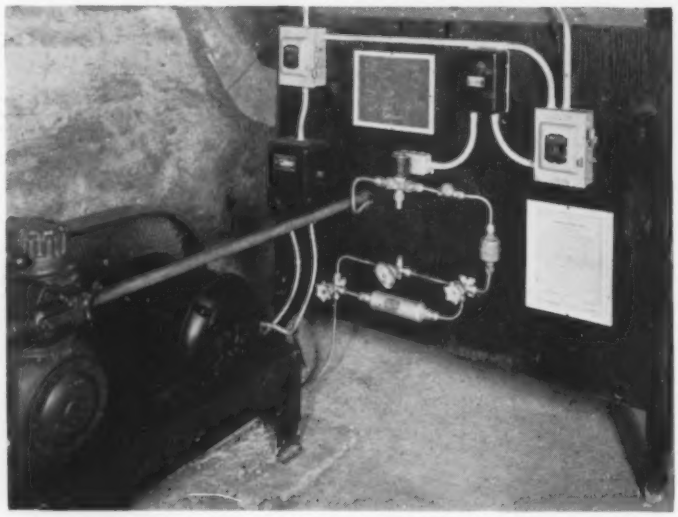
BUY FROM YOUR REFRIGERATION WHOLESALER

Question:—Should we use an oil separator between the low stage and high stage compressors?

Answer:—It would be better to use an oil separator on both the low stage and high stage compressor, particularly on low temperature applications.

Question:—In a home freezer using F-12 in a capillary tube and operating at —6 F in a 60 F room, how slow should high side pressure fall on an off cycle of 30 to 45 minutes?

Answer:—The pressure might drop to about 50 pounds.



Do Your Jobs Look Like This?

HERE'S further visual proof, if you need it, of how much an intelligently planned and neatly erected panel board can contribute to the professional, workmanlike appearance of any refrigeration or air conditioning installation.

Cleanly run lines and uniform tubing bends always are a distinct asset to the appearance of any job. Switches should be mounted where they can be readily seen and conveniently reached, either for use or for service. The same applies to valves, driers, and any other accessories that may be installed on the system.

In addition, it is exceedingly helpful to the owner if wiring diagrams, operating instructions, and similar informational material is permanently mounted on the panel board. One effective way of handling this is to frame each piece under glass, as has been done on the installation shown in the accompanying photograph, to protect it from soil or wear.

These are just a few ideas. No doubt you can think of many more. So on your next job, why don't you put a few of these suggestions to work for you. You'll find that an installation with this kind of "eye appeal" will be a silent—but effective—salesman for you.

OPPORTUNITIES

Classified Advertising Section

Rates: for "Positions Wanted", $3.50 minimum, limit 25 words. For all other classifications, $4.00 minimum for 25 words, each additional word 15c; boldface type or all capitals, $7.50 minimum for 25 words, each additional word 20c; limit 50 words. Box addreses count as five words.

POSITIONS AVAILABLE

REFRIGERATION ENGINEER
By West Coast Manufacturer to operate laboratory for Refrigeration development and Testing. Must be thoroughly experienced in Commercial Refrigeration. Engineering degree required. Write giving full detals. Box 12148.

FOR SALE

Used Baker Ammonia compressors and condensers. New and used fittings, valves. Write Goodsell Refrigerator Company, North Platte, Nebraska for complete list and prices.

"EXCELSIOR BEER PUMPS—made since 1933, are again available in 2 sizes ¼ HP and 1/3 HP. Attractive prices for Dealers." Excelsior Machine Co., 2601 Kutztown Road, Reading, Pa.

Stop Terminal Leaks in Crosley Sealed Units by using the Jiffy Terminal. Easy to install, no special tools needed, can be installed in a few minutes without removing unit from cabinet. Set of three terminals. $4.00 or see your jobber. Detroit-Sealed-in Parts Co., 19191 Rogge, Detroit 12, Michigan.

FOR SALE—Air-cooled and Water-cooled remanufactured condensing units, ¼ up to 2 HP. Write for particulars, Edison Cooling Corp., 310 East 149 St., Bronx 51, N. Y.

SERVICES OFFERED

COLDSPOT INFORMATION NOW YOU CAN SUCCESSFULLY REBUILD COLDSPOT UNITS, Complete information covering repairing, rebuilding compressors, refacing seals, charging, do's and don'ts, best methods, and a score of other helpful hints. A list of complete parts at wholesale prices. A list of special tools that will save you many dollars, as well as time. Sent FREE to Servicemen and Jobbers. PRECISION-BUILT TOOL AND PARTS COMPANY, 4530 Gravois Avenue, St. Louis 16, Missouri.

The
MAINTENANCE DEPARTMENT OF CONDENSER SERVICE & ENGINEERING CO., INC.
100 River St. Hoboken, N. J.
OFFERS TO DO QUICK - PROMPT RETUBING SERVICE
on Freon Ammonia CO_2 Condensers and Coolers - Boilers - Surface Condensers - Heat Exchangers
ANYTHING WITH TUBES
24 Hours a Day 7 Days a Week
365 Days a Year
Saturdays - Sundays - Holidays
We Carry Tubes in Stock
CALL
Telephone: New York: REctor 2-9363
Telephone: Hoboken: HOboken 3-4428

POSITIONS WANTED

Selected group of men, graduates of well-known trade school, desire employment in Refrigeration Field. Will travel anywhere. Qualified in domestic and commercial refrigeration. Reliable. Contact Placement Dept., Eastern Technical School, 888 Purchase Street, New Bedford, Mass.

CARRIER BLAST FREEZING EQUIPMENT WILL INCREASE INDIA'S FOOD SUPPLY

To increase India's food supply, a new frozen fish plant, equipped with blast freezing and refrigeration equipment by Carrier Corp. is now being constructed by the Central Government of India in Bombay, the company's International Div. has announced.

This plant, designed by Carrier engineers, is being built by the government as a pilot plant.

Fish is an important element of diet in India, but because of the high temperature and lack of refrigeration facilities, it is estimated that nearly one-half of the annual catch is wasted through spoilage.

Carrier is supplying all major quick freezing, refrigeration and ice making equipment for the plant in Bombay.

MAGIC IN A SMALL BOTTLE

FREEZE-UPS ELIMINATED *RIGHT AWAY!*

ICE-X quickly cures emergency freeze ups when ice forms at the expansion valve or capillary tube. Harmless to use. Great for Freon, Carrene, or Methyl Chloride systems . . . The dependable liquid anti-freeze.

"ONE SERVICE MAN TELLS ANOTHER - IT'S GREAT"

ORDER FROM YOUR JOBBER OR—

EXCLUSIVE NATIONAL DISTRIBUTOR
THE HARRY ALTER CO. 1728 S. MICHIGAN AVE. CHICAGO 16, ILLINOIS
JOBBERS: WRITE FOR SPECIAL PROPOSITION!

Non Stop SATISFACTION VIA Sanitary

TE45 ELECTRIC TRAILER REFRIGERATOR

SANITARY Electric Refrigerators for trailer homes and city apartments will operate efficiently, when built in because they are specially engineered. Equipped with nationally known condensing unit. Available in 4 and 6 cu. ft. net sizes at attractive prices. The market is all around you and it's ready for the harvest. Write for detailed information.

SANITARY REFRIGERATOR CO.
FOND DU LAC WISCONSIN

VIRGINIA

Refrigerants

"EXTRA DRY ESOTOO"

Liquid Sulfur Dioxide

"V-METH-L"

Methyl Chloride

consistently pure

consistently sure

VIRGINIA REFRIGERANTS

VIRGINIA

West Norfolk · New York

Boston · Detroit

VIRGINIA SMELTING COMPANY

WEST NORFOLK, VA.

Distributors for

Kinetic's "Freon" Refrigerants

"EXTRA DRY ESOTOO"

"V-METH-L"

Available from wholesalers coast to coast

SERVING INDUSTRY FOR 50 YEARS

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Simplify your service... Improve Refrigeration efficiency with A-P DEPENDABLE VALVE

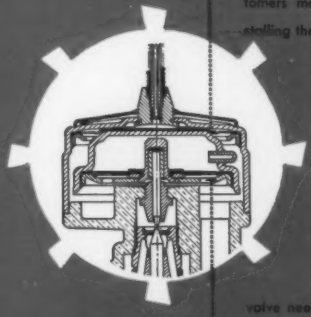
Here's Valuable Overload Protection

FOR YOUR ½ TO 1-TON SYSTEMS

A-P Model 212 Adjustable Superheat Thermostatic Expansion Valve with Limiting Pressure Feature.

A-P Pressure Limiting Model 212 THERMOSTATIC EXPANSION VALVES

Whenever motor overload is indicated at peak load or during pull down on any system, you'll offer your customers money-saving "performance insurance" by installing the *pressure limiting* A-P Model 212 Thermostatic Expansion Valve. It will save excessive strain on the motor and even expensive breakdowns.



In addition to the sensitive large-area diaphragm typical of all A-P Valves, the Model 212 has an exclusive and entirely new diaphragm unit which limits operating suction pressure to a predetermined setting. If suction pressure becomes excessive, this diaphragm opposes the main diaphragm action, allowing valve needle to move towards the closed position, until the overload condition has passed. Then the valve reverts to normal operation, controlling superheat through the thermostatic bulb and main diaphragm, with its usual accuracy and dependability.

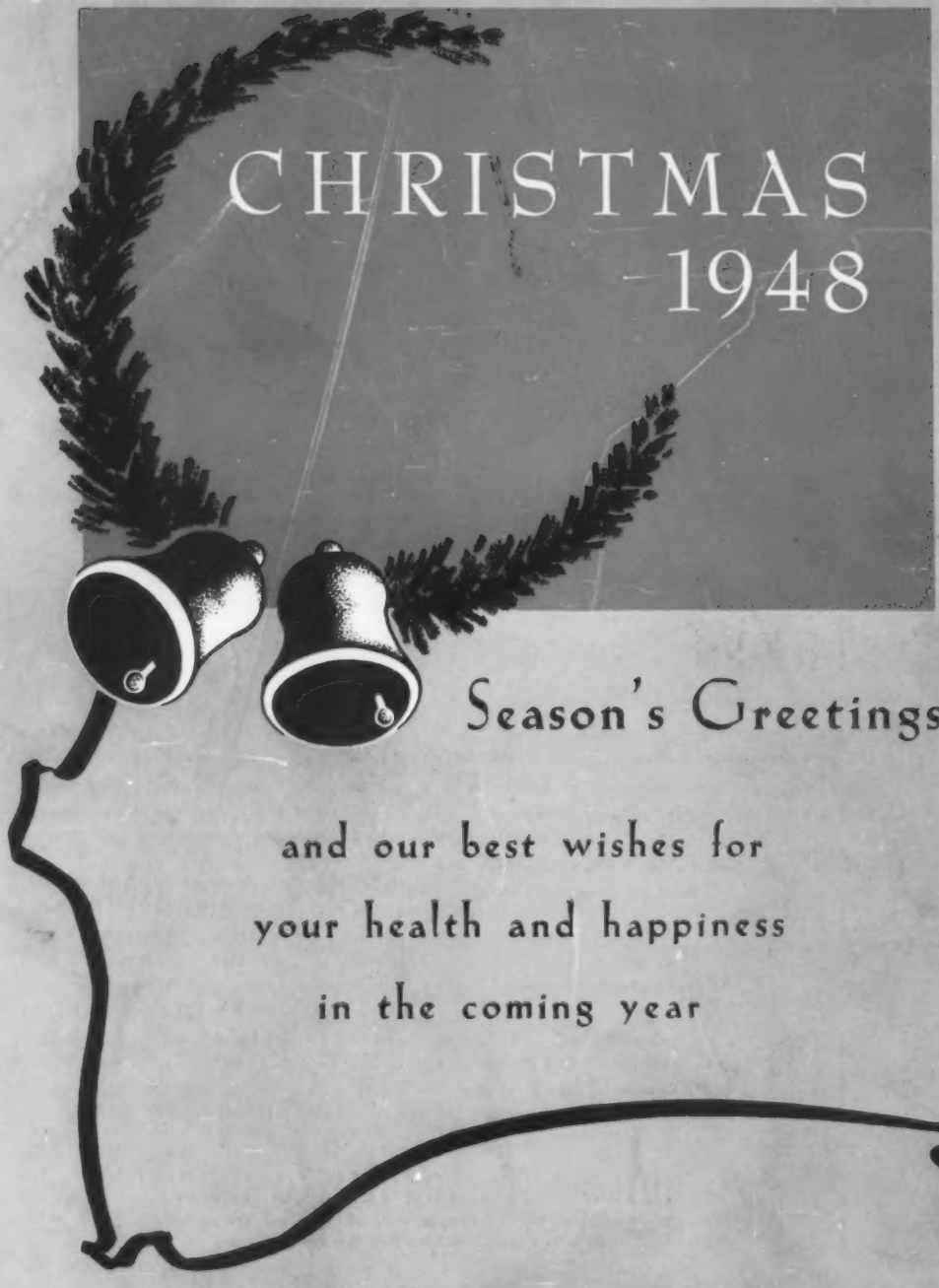
Model 212 can replace any standard thermostatic expansion valve of ½ and 1-ton Freon 12 or Methyl capacity, and has the usual adjustable superheat range. It is liquid charged and thus mounts in any position or ambient temperature without affecting bulb control accuracy. It is available to limit pressures at 15, 40, and 55 lbs. Freon 12, and 10 and 30 lbs. Methyl. Model 211 with fixed superheat, same capacity, is also available. Your wholesaler stocks and sell them. Write for bulletin No. E-156.

AUTOMATIC PRODUCTS COMPANY

2488 North Thirty-Second Street • Milwaukee 10, Wisconsin
Export Department, 13 East 40th Street, New York 16, N. Y.

A-P DEPENDABLE REFRIGERATION VALVES

STOCKED AND SOLD BY GOOD REFRIGERATION WHOLESALERS EVERYWHERE . . .
RECOMMENDED AND INSTALLED BY LEADING REFRIGERATION SERVICE ENGINEERS



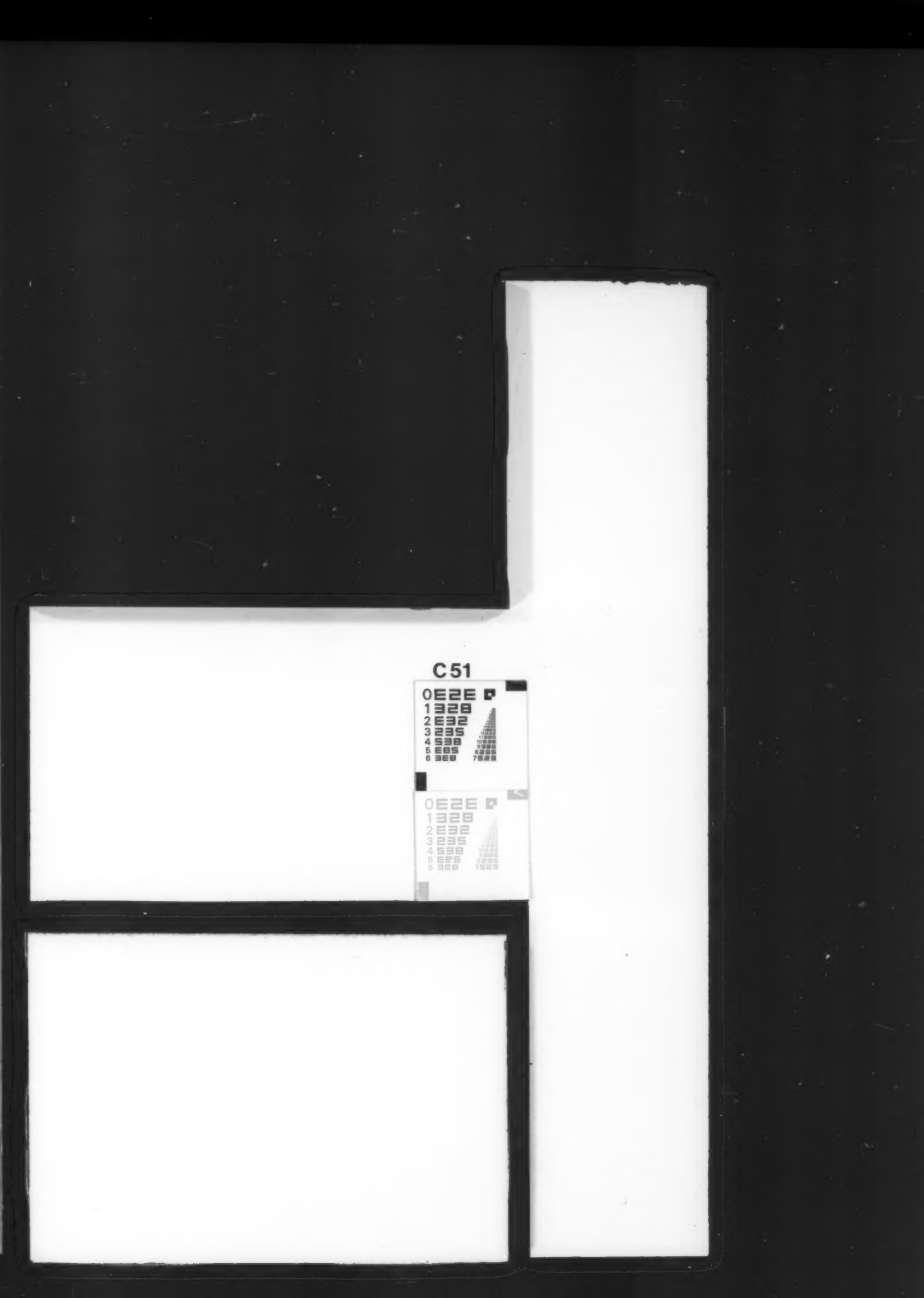
Season's Greetings

and our best wishes for
your health and happiness
in the coming year

THE STAFF OF

THE REFRIGERATION INDUSTRY

1240 ONTARIO STREET CLEVELAND 13, OHIO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